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ADDRESSES AND ORIGINAL ARTICLES

ERUPTIVE MEDITERRANEAN FEVER *

By A. Lemierre

PROFESSOR IN CHARGE OF THE CLINIC OF INFECTIOUS DISEASES AT THE UNIVERSITY OF PARIS

In June, 1933, I was called by Dr. Turner of the American Hospital in Paris to see a man, aged 42, who had been admitted 48 hours previously on account of a febrile disease accompanied by a rash. The patient had only just returned from a visit to Italy where he had been staying in the country near Milan. During the last nights of this visit he had been bitten in the abdomen by two ticks which he traced to a dog, which slept beside his bed. He had immediately removed these ticks from his skin, leaving two small wounds which during the following days became slightly inflamed with some painful swelling of the axillary and inguinal glands. At this time the patient left Italy to return to Paris and a few days later, 12 days after the bites, he was seized with shivering, malaise, pains in the joints and calves, and considerable drowsiness throughout the day. On the following day he noted the presence of a rash on his forearms and hands; next day this was present throughout the body with the exception of the face. Fatigue and articular pains persisted; there was no headache. The temperature was 100·5°.

This was the history when I was called to see him in hospital on June 5th. He was a man of good physique, perfectly clear in his mind, and answering all questions with precision. At the same time his lassitude was marked, his movements were restricted by the pains in the joints although the latter were neither red nor swollen. The muscles of the calves were tender to pressure. The temperature was 101°, pulse 110; there was no injection of the conjunctivæ. The tongue was moist and slightly coated. The rash covered the entire body, including the plantar surfaces of the hands and feet. On the face it was very discrete and faint. It consisted of a macular eruption, each spot being from 3 to 7 mm. in diameter, with irregular margins, and red-violet in colour. Some of the spots were slightly raised, notably on the wrists and the back of the hands. A few were almost purpuric and did not disappear on pressure. A few maculæ were visible on the palate. There was no pruritus.

The tick-bites were still visible on the abdomen in the form of pink scars of irregular outline, nearly a centimetre in width at their largest diameter and lying to the right and to the left of the upper part of the abdomen. The inguinal and axillary glands were still slightly enlarged, firm, and not painful. The spleen could very easily be felt below the left costal margin on inspiration. The lungs, heart, liver, central nervous system, and urine appeared normal. Hæmatological examination revealed neither anæmia, leucocytosis, nor variation in the differential leucocyte count.

I had no further opportunity of seeing this patient, but learned later that his temperature began to fall on the day following my examination and became normal on the fourteenth day of the disease; the rash gradually faded and disappeared at the same time as the fever, and convalescence was uninterrupted.

It is certain that this was not one of the common exanthemata. The patient had previously suffered from measles, German measles, and chicken-pox. In the illness above described, the nature of the fever, the macular eruption, marked on the plantar surfaces of the hands and feet, the intensity of the arthritic pain and pain in the calves, the absence of drowsiness, and above all the appearances of the disease several days after the tick-bites and the occurrence of the illness in the country near Milan—all these points confirm the diagnosis of eruptive Mediterranean fever. This disease, contracted in Italy, became apparent in Paris after a voyage taken during the incubation period.

FEATURES OF THE DISEASE

Eruptive Mediterranean fever was described in 1910 by Canor and Bruch and Hayat in Tunis. It was rediscovered in Marseilles in 1925 by D. Olmer. In France it occurs along the Mediterranean coast and in the neighbouring country. It also occurs in Italy, Spain, Portugal, Greece, Rumania, Morocco, Algeria, Tripoli, Egypt, and Syria. It has been shown by P. Durand and Conseil to be transmitted to man by the bite of a tick, *Rhipicephalus sanguineus*, which is found on dogs. Persons of both sexes and of any age may be affected, but those of 40 years or older are particularly sensitive. All social grades may be attacked. The disease is only found during hot weather, between the end of April and the beginning of November, at the time when dogs are liable to be infested by ticks. The disease is usually limited to restricted areas, where several persons may be simultaneously attacked or new cases noted for several years in succession. The presence of dogs in these areas is invariable and the contact of infected persons with dogs has been many times demonstrated.

The tick-bite, the cause of eruptive Mediterranean fever, occurs usually on parts of the body covered by clothing. It causes a dark brown puncture, 4 to 10 mm. wide, and described for the first time by Piéri and Burgeas as the "black spot." The discovery and recognition of this "black spot" is the most important point of the diagnosis of the disease. In certain cases it must be sought for very carefully, as it may be found in folds of skin or amongst the hair of the pubes or axillæ, occasionally in the fold behind the ear or even in the external auditory meatus. It is usually accompanied by some swelling of the neighbouring lymphatic glands. Accidental inoculation of the virus has occasionally occurred through the conjunctivæ following the passage of fragments of a tick into the eye as in the case described by D. Olmer, or more often in persons who, after having killed ticks with their nails on their dogs, rub their eyes with their dirty fingers. This type of inoculation gives rise to a conjunctivitis which is often unilateral and is a true specific lesion (Blanc and Caminopetros).

Eruptive Mediterranean fever may begin sharply by shivering and a rise of temperature to 101° or 102°. Sometimes the temperature rises slowly, reaching 101° on the third day only. During the initial pre-eruptive stage the patient complains of headache and pains in the joints, bones, and muscles. The pulse is regular at about 100 per minute, the tongue is slightly coated, vomiting may occur with redness of the pharynx, some difficulty in swallowing, and injection of the conjunctivæ. The fever remains high at about 101° with slight morning remissions. The eruptive period is characterised by the presence of the rash, which appears on the second to the fourth day of the disease. It comes out first upon the trunk and limbs and spreads in 48 hours to the whole of the skin surface. On the face it is more discrete, but is denser on the trunk and predominates on the limbs. It is

* Delivered at the Middlesex Hospital Medical Society on Jan. 23rd.

well marked on the palms and plantar surfaces of the feet. It forms slightly raised round or oval maculæ, always separated from one another by areas of normal skin. The colour is pink at the beginning and then becomes red and ultimately purple. At this latter stage the spots do not completely disappear on pressure. Particularly on the lower limbs the spots may be definitely purpuric. The pharynx is red and slightly swollen, and the soft palate often shows maculæ which may be converted into superficial ulcers.

During the eruptive period the temperature remains elevated but begins to fall slightly as soon as the eruption is complete. The spleen is increased in size and the liver occasionally so. Urobilin and sometimes actual bile are found in the urine. Constipation is usual. A slight bronchitis is sometimes noted. The joints and muscle pains may diminish when the eruption is fully out but sometimes persist. In no case is the intelligence impaired or drowsiness present. The eruptive period is followed by a period of decline. This begins on the fifth to the eighth day, during which time the fever falls to 99° or 100° at which level it remains for three or four days. It then falls by lysis to reach normal on the twelfth or fifteenth day of the disease. During this same period the rash fades and gradually disappears, the purpuric elements remaining longest visible. It is occasionally possible to discover traces of the rash even several months later. The scabs of the tick-bites come off between the eighth and tenth day, leaving a superficial ulceration which changes into a pink cicatrix. Convalescence is gradual, the patient remaining weak for some considerable time.

ATYPICAL ASPECTS: DIAGNOSIS

Such are the usual features of eruptive Mediterranean fever, but the disease may present atypical aspects making diagnosis difficult. Cases have been observed in which the "black spot" has been absent; cases without any rash but revealed by the presence of the "black spot," the fever, and the arthritic pains have also been observed. It has been noted, particularly amongst very old persons, that a virulent form of the disease may occur with extreme toxæmia and a syndrome suggestive of typhoid which may lead to death within a week; on the other hand benign types of short duration have been seen in children, and in yet other cases a prolonged form with fever existing for a month has been noted. Finally, it must be noted that Troisier and Cattan state that cases of tick-bite may occur without production of symptoms. Complications are rare; myocarditis, phlebitis, congestion of the lungs, nephritis, and meningism have been noted. D'Oelsnitz has recorded pharyngeal ulceration persisting to gangrene and death, but in general the disease has a favourable prognosis with a mortality of less than 2 per cent. without relapses and with subsequent immunity to further infection.

DIAGNOSIS

Diagnosis is easy in countries where the disease is endemic and can be confirmed by the Weil-Felix reaction, that is to say by demonstrating the presence of agglutinins against *B. proteus* X 19 in the blood of the patient. This reaction is negative during the febrile period but becomes positive in the days following the fall of temperature, and is then present in dilutions of 1/50 to 1/32,000 (D. Olmer, J. Olmer, and Teissonnière, 1928, Durand, 1932). The only disease which can be confused with eruptive Mediterranean fever, when the "black spot" is missing, is another eruptive fever which is also found on the Mediterranean littoral and which causes a similar rash but is transmitted to man by the bites of fleas coming from rats. Quite recently investigations made by injecting guinea-pigs with the blood of patients have enabled distinction to be made between these two diseases.

THE VIRUS OF THE DISEASE

It remains for us to examine our present knowledge of the ætiology and particularly concerning the virus of the disease. The part played by tick-bites in transmitting the disease to man, suspected in 1928 by D. and J. Olmer, Raybaud, and Godlewski, was finally demonstrated in 1930 by the experiments of Durand and Conseil.

The tick in question is found on the Mediterranean littoral; it may infest not only dogs but various mammals and even certain birds. Durand and Conseil have taken ticks from dogs living near infected persons, and after washing and crushing them into an emulsion in saline have inoculated this emulsion subcutaneously in two human subjects who subsequently contracted the disease. These experiments, frequently repeated by different observers, have permitted us to reach precision concerning the conditions in which the ticks become liable to infect men. Once a tick becomes a carrier of the virus it remains so throughout its existence. It remains virulent throughout winter, during which time it does not feed upon animals but lives in holes in walls and underneath stones. Not only adult ticks but their nymphæ caught in winter may carry the disease to man if infected (Brumpt). Furthermore, the female ticks may transmit the virus to their offspring; their eggs, the larvæ, the nymphæ, and the adult ticks springing from these may contain the virus. The rhipicephalæ therefore form an important reservoir of the virus thanks to which the latter is retained in Nature.

Ticks which are not infected at birth may become contaminated by living on the blood of infected animals. There must therefore exist animals, and above all mammals, who are themselves, if not reservoirs of the virus, at least agents for its spread amongst ticks. Durand in 1932 demonstrated that puppies at the breast could contract the disease if inoculated with the emulsion of infected ticks, and that they then suffered from a short and scarcely perceptible illness. It therefore appears probable that they may sometimes be infected in the kennel by tick-bites. During this disease any uninfected ticks which bite them become contaminated in their turn and so increase the reservoirs of virus. It must be noted that although the fever can thus be experimentally transmitted to puppies, this cannot be done in the case of adult dogs. Durand believes that in infected localities such dogs having contracted the fever as puppies have acquired an immunity which prevents infection at a later date.

It is certain that other animals, both domestic and wild, are susceptible to the virus, but if this fact has been demonstrated experimentally we still know nothing concerning those which really contribute to the propagation of the disease in Nature. Joyeaux and Piéri have succeeded, by injecting an emulsion of ticks into rabbits, in producing a slight febrile disturbance in these animals and have, by inoculating an emulsion of the brains of such animals into men, conveyed the eruptive fever to the latter. Blanc and Caminopetros have demonstrated that the disease can be easily transmitted to the white mouse and to a small Macedonian rodent, the spermophile, whose blood, viscera, and brain then become virulent. Durand and Laigret have made the same observation for the white rat and for a wild African rodent known

as the gerbille. Caminopetros has succeeded, by intraperitoneal injections in the guinea-pig of an emulsion from ticks collected in the Pirees, in producing a febrile malady accompanied by periorchitis. Troisier and Cattan have produced the same results by intracerebral inoculation.

These various researches establish that many rodents are sensitive to the virus and also that the ticks form an excellent virulent material for the experimental study of the disease. It must be added that the human form of the disease produced experimentally is sometimes typical and characterised by fever and an extensive rash, and at other times atypical and consisting solely of fever (Conseil and Durand, Brumpt, Joyeaux and Piéri, D. and J. Olmer, Blanc and Caminopetros). Blanc and Caminopetros have further produced the eruptive fever in man by the ocular route by deliberately bringing fragments of the tick into contact with a damaged conjunctiva. Canor and Bruch in 1910, D. Olmer, Burnet and Durand in 1928, Troisier and Cattan in 1931 have shown that the injection of the blood of infected men into the peritoneum of monkeys would produce a febrile and communicable illness, and recently Troisier and Cattan have produced the same effect in guinea-pigs, a result which has been confirmed by Sampietro. Whilst Blanc and Caminopetros have shown that the Macedonian spermophile is the most sensitive of all animals to human blood, a simple subcutaneous injection being sufficient to produce the disease and render the internal organs of the animal virulent in their turn. Blanc and Caminopetros have, conversely, infected men from the blood of the spermophile, making this and other experiments show that this animal is the one of choice for the preservation of the virus in the laboratory for experimental work.

TRANSMISSION TO MAN

The transmission of eruptive Mediterranean fever to man by the inoculation of infected human blood was achieved for the first time in 1931 by Prof. Claude and by Coste. These workers seeking to treat general paralysis of the insane by some procedure less dangerous than the inoculation of malaria, began by conveying Mediterranean fever to such a patient by the subcutaneous injection of emulsified ticks. They then removed blood from this patient during the febrile period and inoculated it subcutaneously in doses of from 9 to 20 c.cm. into three other similar patients who, after an incubation of 9 to 10 days, developed a febrile illness lasting about ten days. Subsequently, they made similar injections into a series of cases but noted that the successful passage of the virus from case to case brought about a rapid attenuation of its virulence. D. and J. Olmer repeated these experiments and showed that intramuscular injection is equally effective, whilst Blanc and Caminopetros achieved the same effect using citrated blood by the intravenous route. These experiments show that the successful inoculation from case to case steadily diminishes the strength of the virus, prolonging the incubation period, and rendering the eruption less and less conspicuous until it finally fails to appear. On the other hand, Cambiesco has been able to increase the virulence by mixing the blood from two patients, by which procedure he has produced a severe form of the disease on injection into patients with general paralysis.

The various researches considered above show the variability in the toxicity of the virus according to the manner in which it is modified experimentally. The passage of virus through the organism of the spermophile is one method which greatly increases the activity of the virus. Whereas 30 to 40 cm. of infected human blood are necessary to communicate the disease to another human subject, 1 or 2 cm. of the blood of the spermophile is sufficient to produce the same result (Blanc and Caminopetros).

It would seem that the micro-organism responsible for the disease is a rickettsia body to which Brumpt has proposed to give the name of "Rikettsia Conori." This body has been seen by Durand in histological sections of the skin eruption, by Brumpt in the tissues of infected ticks, and by Caminopetros in the serous membrane and swollen endothelial cells of the tunica vaginalis of guinea-pigs suffering from periorchitis. This specific organism is a filtrable virus (Blanc and Caminopetros).

CONCLUSION

Eruptive Mediterranean fever from the clinical and ætiological points of view closely resembles other eruptive fevers found in various parts of the world; Rocky Mountain spotted fever which is transmitted by the bite of *Dermacentor andersoni*, the oriental form of the same fever which is transmitted by *Dermacentor variabilis*, which occurs in the United States, the typhus of San Paulo which is transmitted by *Amblyomma cajennense*, which is found in Brazil, Tsutsugamushi disease transmitted by *Trombidium akamushi*, which occurs in Japan and Indo-China and in East Africa, and some eruptive fevers of Malaya, India, and South Africa. The eruptive Mediterranean fever is, however, a disease specifically different from all the others and has a much less grave prognosis.

The common characteristic of all these diseases, whatever their geographical distribution, is the fact that they can be conveyed to man through the bite of ticks, that clinically they produce fever, a generalised macular eruption of purpuric tendency and affecting the plantar surfaces of the hands and the feet, and producing arthralgia, and finally, that they are due to organisms of the Rickettsia type. Their description forms one of the newly written chapters of human pathology distinct from that of the eruptive typhus with which these diseases were for long confused. It is a chapter whose interest is daily increased by new discoveries and which medical men cannot afford to ignore.

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SYMPATHECTOMY

A REVIEW OF ONE HUNDRED OPERATIONS *

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It is necessary first to define the word which I have chosen for the title of this paper. I propose to limit the meaning of the word, sympathectomy, to the operation of cord-ganglionectomy in one or other of two regions: (1) the lumbar, and (2) the cervico-dorsal segments of the autonomic system. In the former case it means the excision of the lumbar sympathetic cord together with the second, third, and fourth ganglia and in the latter case the section of the thoracic sympathetic cord below the second ganglion and its removal to a point aiming at complete ablation of the cervico-dorsal (stellate) ganglion.

Of these sympathectomies I have performed in all, between April, 1931, and the end of 1933, a total of 100. In each of these cases I have had, both before and at the operation, the advice and assistance of Prof. J. S. B. Stopford, and I cannot adequately express my sense of indebtedness to him as an anatomist and clinical neurologist.

Of the 100 operations, 71 were bilateral operations on the lumbar sympathetic cord or its rami; 5 were unilateral operations on one or other of these cords; and the remaining 24 were excisions of the cervical dorsal ganglion. We have not done any perivascular operations, since we believe them to be incomplete and anatomically unsound. Neither have we, except in three special instances, attempted ramisectomy; because, although this operation is anatomically the best and most conservative, the very variable anatomy of the autonomic system renders the results uncertain. The operation of ramisectomy should, however, become more common in the future as knowledge of anatomical and physiological detail becomes more precise.

The majority of these sympathectomies have been performed with the object of paralysing the vaso-constrictor fibres to the limbs either as part of the treatment of certain vasospastic disease such as Raynaud's disease, or with the object of bringing an increased supply of blood to a limb, as in acro-cyanosis. In other cases, the operation has been done for its effects on the muscle of the colon or on the sweat glands and for the relief of scleroderma.

In attempting a survey of so wide a field it is best to consider, group by group, the diseases which we have sought to benefit by the operation.

THROMBO-ANGIITIS OBLITERANS

Whatever view (and they are many and unconvincing) one may hold as to the cause of the distressing and disabling disease, thrombo-angiitis obliterans, it appears certain that arterial spasm plays an important part in the development of the lesion. As the disease worsens the amount and extent of the thrombosis increase and the part played by spasm diminishes. Hence, sympathectomy which can act only by abolishing spasm and by dilating available collateral channels must be done early in the disease if it is to be of benefit. An artery which has reached the stage of organisation and has become a mere rod of fibrous tissue cannot be benefited by sympathectomy or indeed by any operation. We have found the operation to give its best results in the earlier cases and in the younger patients.

The operation is of little curative value where massive gangrene is present, but even here it may give a dramatic relief from pain. It can be relied upon in earlier cases to banish the coldness of the foot, to heal onychias and minor gangrenes, and to abolish rest pains; but it is at times disappointing in its effect on that symptom which naturally makes most appeal to the patient—namely, the claudication. A man whose walking distance has contracted to 100–200 yards may find it raised to half a mile or a mile after the operation, but the total cure of his claudication is unfortunately rare. It is evident from these results that a foot can be kept warm and comfortable by much less blood than is needed to make a muscle do continuous work.

We think our results show that further progress of the disease may be arrested but it is impossible to speak confidently of this, for the disease is not only very chronic in its course but erratic in its rate of progress.

It would take too long to give detailed results of our 45 operations and we have already published the first 16 cases at full length.[1] We have just concluded an inspection of all cases in this group and we find that half the results are very satisfactory both to ourselves and, what is more important, to the patients; of the remainder, half expressed themselves as distinctly improved, while in the rest (i.e., about a quarter) the result is a failure. It should however be pointed out that this last group consists almost without exception of the older patients with gangrene already present. Here, although relief of pain was in all cases striking, the limb had to be removed sooner or later on account of the gangrene. A bilateral operation was done in these cases, and from their after-history there is distinct ground for hope that a similar catastrophe may be averted in the remaining limb.

Four of the patients have since died; one of alcoholic delirium; one of hæmatemesis from an acute duodenal ulcer, proved by post-mortem examination; one from cardiac muscle failure; and the fourth from an anginal attack whilst running for a tram. This last was a man of 26 whose disease dated from the age of 19. The operation resulted in the healing of three partially gangrenous toes and the man went back to his work for several months. A post-mortem and histological examination showed thickening of the intima of the coronary arteries. This finding suggests that the arterial disease may, on occasion, be more widespread than a routine clinical examination would disclose.

RAYNAUD'S DISEASE

The historic communication in which this disease was first described has, not unnaturally, caused it to be regarded as a disease of the hands occurring in young women. It is clear that this is too limited a view; the syndrome is found quite frequently in the feet and is not infrequently seen in men.

The disease is usually regarded as an intermittent spasm of the smaller arteries, and the very obvious association of the attacks with emotional disturbances accords well with this view. Some observers have postulated a primary disease of the smaller arteries as the cause, but to this view it may be objected that such arterial disease is more likely to be the result of the spasm, as is shown by the phenomena of thrombosis in ergotism and certain cases of cervical rib.

If it be correct to regard Raynaud's disease as due to spasm consequent upon vasoconstrictor impulses, then cord-ganglionectomy should abolish the disease.

*Abstract of an address delivered to the Sheffield Medico-Chirurgical Society on Feb. 15th, 1934.

When, however, we come to consider the results of this operation we find considerable discrepancy between those in the upper and lower extremities. In the lower extremity the results of a bilateral lumbar sympathectomy, done for Raynaud's disease, are always good. The attacks are abolished, the feet remain warm and of good colour. These results have remained without any relapse in our earliest cases, now close upon three years ago.

The operation in the upper extremity gives less consistent results and we have not in every patient obtained so good a result as is seen in the lower limb. It is not uncommon to find that one or more fingers, usually on the ulnar side, are liable to attacks of cyanosis and these areas show some perspiration; this, of itself, indicates that the sympathetic denervation is incomplete.

It is curious to note that, in spite of what one must on clinical grounds regard as a partial failure, these patients have all expressed themselves as very pleased with the result; they say they do not mind the blueness because they have no pain and can do their work, even in cold water.

A recent survey of our 22 operations for Raynaud's disease of the upper extremity shows that 11 are completely satisfactory; 8 are clinically incomplete but functionally good; whilst 3 have given no result. These latter were cases which had gone on to severe sclerodactyly, and will be referred to later. The eight operations which have been done for Raynaud's disease of the lower extremity are all completely successful.

It is not reasonable to suppose that the disease in the arm is a different disease to that seen in the legs, and the explanation must lie in an incomplete section of the vasoconstrictor fibres due to the very different anatomy of the lumbar and cervico-dorsal operations. The lumbar operation is easy and the resulting loss of vasoconstrictor impulses is very complete. It is otherwise with the cervico-dorsal ganglionectomy. Not only is the approach more difficult (we believe the posterior route to be the better), but the anatomy of the ganglion and its branches show great variation in their arrangement. This has been well shown in a series of 25 dissections by Sheehan.[3]

ACROCYANOSIS

By the vague and non-committal term, acrocyanosis, is meant a condition in which the extremities are constantly cold, blue, and liable to chilblains and ulcers. This condition, which in a minor degree is not uncommon, does at times give rise to more serious trouble especially in young women. Chilblains continue throughout the summer, ulceration of the pulp and nail folds is persistent, and, in some cases, toes become so deeply cyanotic as to appear on the verge of gangrene. In addition to the pain consequent on the local lesions there is usually so constant an ache in the feet that exercise and work become impossible.

For cases of this severe type sympathectomy can do a great deal. We have operated on 9 cases, all in young women, and all by a bilateral lumbar sympathectomy. The results have been uniformly excellent and the troubles have been abolished. The feet remain warm, the pain has gone, and we find that these patients are very grateful for the complete relief they have obtained.

ACUTE ANTERIOR POLIOMYELITIS

A limb which is the site of severe anterior poliomyelitis develops eventually a condition which appears to be closely related to that of the last-mentioned group. The extremities are cold, blue, prone to chilblains and chronic ulcers.

Certain observations which we have already published[2] point to the fact that the quantity of blood which is entering the limb is reduced in amount by reason of retarded growth of the arteries and, further, that the venous return is slow and shows a decided lag. This slow return is doubtless due to the great loss of muscle. A normal amount of muscle with its well-valved veins is necessary for the proper return of blood, especially in the lower extremity. Blueness, coldness, and ulceration will be found always to vary directly with the amount of muscular wasting. If, then, by sympathectomy we can deliver an increased volume of blood to the limb we should be able to improve the condition. We did a lumbar sympathectomy in three such patients in August, 1932, and up to the present the results are satisfactory. It may be that more than two winters are necessary before one can be certain.

HIRSCHSPRUNG'S DISEASE

Of recent years much work has been done on the effects of sympathectomy in Hirschsprung's disease. The distension and dysfunction appear to result from a disturbance of the autonomic supply of the gut—an imbalance between the sympathetic and the parasympathetic innervation.

It is evident from the many published cases that sympathectomy has yielded remarkably good results. It seems clear however that a good result can be expected only in those cases in which there is still a sufficiently normal colonic wall capable of response to the altered innervation. Hence the operation should be done at an early date and is especially indicated in children. In the older patients, in whom gross secondary changes have ensued and the wall of the gut has become thickened, stiff, and fibrosed, sympathectomy cannot yield completely satisfactory results.

There is considerable difference of opinion as to the best type of sympathectomy in these cases, but most methods involve a stripping of the aorta around the origin of the inferior mesenteric artery together with a perivascular sympathectomy extending for some half-inch along this vessel. The results of this operation appear to be good, but objection may be raised to the technique on the ground that a perivascular stripping of the inferior mesenteric artery may endanger the parasympathetic supply. An operation designed to break the sympathetic and conserve the parasympathetic supply would be physiologically more sound and this can be done by dividing, as first suggested by Wade,[4] those rami which pass from the neighbourhood of the first and second lumbar ganglia to the "aortic" plexus. These are usually two in number; large and distinct. They are easily reached on the left side but on the right side the operation is rather more difficult as they pass behind the inferior vena cava. They must, of course, be divided on both sides.

This is probably the most physiological and precise of the various methods which have been advised. The results in our cases have been so striking that they may well be described as dramatic. In a boy, aged 8 years, who had on several occasions been admitted to hospital for the mechanical unloading of a huge megacolon, the result has been completely successful. Since the operation, now two years, he has had not a single dose of purgative drug and the improvement in growth, colour, and general well-being is very apparent.

It seems certain that in future this type of sympathectomy will completely supersede the old,

unsatisfactory, and often dangerous treatment by lateral anastomosis or resection.

CONSTIPATION

There is reason to suppose that some cases of very obstinate constipation, especially in young adults, often women, are due to autonomic imbalance and can be cured by the same type of operation as has given such good results in megacolon. Boggon [5] in 1932 reported six cases and gave indications for the operation.

Our own experience in this branch has not been extensive, but, as far as it goes, it agrees entirely with the results which have been obtained by other workers.

A typical case was that of a young man, 22 years of age, who had suffered from most obstinate constipation for three years. He had taken very large doses of the ordinary purgatives and even of croton oil without result, and for six months had been able to obtain a result only from enemata. A sympathectomy, by the method above described, was done in June, 1933. The result has been entirely satisfactory and the improvement in colour, appetite, energy, and general well-being is very striking.

It is, however, possible that some degree of relapse may occur later in these cases; observations over a period of years are much to be desired.

HYPERIDROSIS

The effect of sympathectomy is to abolish the action of the sweat glands in the denervated district. This effect is seen in all sympathectomies and may, in fact, constitute a minor drawback of the operation because the skin of the extremities, particularly of the feet, tends to become harsher and drier than normal. This effect may, however, be of value in certain cases in which excessive sweating leads to pathological change.

We had sent to us two years ago a man of 41 years, who stated that for the past three years he had been troubled by excessive sweating of the feet. In the course of a day's work he had to remove his socks, wring them out, and dry his feet at least six times. There was no bromidrosis. Eventually the skin of the soles became so sodden and fissured that septic infection developed, and the man had been unable to walk for six months. Within three weeks after a lumbar sympathectomy the skin of the feet had returned to normal and there has, of course, been no further perspiration.

SCLERODERMA AND SCLERODACTYLY

Little is known of the pathology of scleroderma. The lesion takes the form of a diffuse fibrosis of the skin and subcutaneous tissue, and appears, in some cases, to follow the distribution of peripheral nerves. The condition very closely resembles the distressing cases of sclerodactyly which are apt to ensue on a long period of severe Raynaud's disease. The skin of the hand and fingers becomes tight and glossy; the fingers are rigidly fixed in a flexion contracture and their pulps often show the scars of ulcers the result of ischæmia.

In three such cases we have performed a cervico-dorsal ganglionectomy but the results have not been encouraging.

In one woman, aged 47, with a lifelong history of Raynaud's disease and a sclerodactyly of four years' standing, the operation has proved of no benefit. In a second case, a man of 36, with four years' history of advanced sclerodactyly, there has been some improvement in mobility and a diminution of pain. The third case was a woman of 36, who was obliged to give up work as a weaver six years ago owing to contraction of the fingers, the operation resulted in but slight functional improvement although she says the hands are much more comfortable.

It seems likely that in cases of Raynaud's disease which proceed to a true sclerodactyly the disease is too advanced to benefit much by ganglionectomy. There is hope, however, that an earlier operation may prevent the onset of the deformity.

We have had a much more fortunate result from sympathectomy in a case of true scleroderma in a girl of 22 years. The disease had spread extensively over both lower extremities and on the right side had involved the whole limb. There was complete fixation of the ankle-joint and of all the joints distal to it. A bilateral lumbar sympathectomy done in November, 1932, has produced an excellent result. The course of the disease has not merely been arrested but the skin has become much more supple whilst movements of the ankle and foot have been restored to normal range.

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THE FLUID FACTOR IN THE TREATMENT OF NEGLECTED DIABETIC COMA

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It has often been stated that since insulin has become available no diabetic need die in coma. This is a misleading half-truth. Diabetic coma, unless promptly recognised and skilfully treated, rapidly develops into a desperate emergency which not infrequently ends fatally. In hospital practice a considerable proportion of patients admitted in coma arrive in this critical condition. The usual history is that the patient first complains of nausea, vomiting, and abdominal pain—the most constant symptoms of early coma—or contracts some febrile infection which temporarily deprives him of his appetite. His attendants, fearful of hypoglycæmia, suspend his insulin injections instead of increasing the dose and substituting heavily sweetened fruit drinks for the usual diet. When the patient arrives at hospital the presenting signs, apart from air-hunger, glycosuria, and ketosis, are those of profound circulatory collapse which is accompanied by, and probably largely the result of, extreme dehydration.

CAUSE OF THE DEHYDRATION

This dehydration can be attributed to the following morbid processes:—

(1) *The alteration in the metabolic mixture.*—The arrest of carbohydrate metabolism diverts the process of katabolism towards the fat stores. For some obscure reason this change in the quality of fuel burnt causes loss of body fluid, even in the absence of ketosis or glycosuria.[3 1]

(2) *Ketone acidosis*, for acidosis, however provoked, is accompanied by dehydration.[10 8 5 7]

(3) *Glycosuria*, which calls for an increased output of water by the kidneys, in order that the specific gravity of the urine may be maintained within physiological limits.

(4) *Hyperpnœa*, which increases the insensible perspiration through the lungs.

(5) *Destruction of protoplasm.*—In order to furnish protein for fuel, extensive destruction of protoplasm occurs, and cellular water is set free for excretion.

(6) *Vomiting.*

(7) *Curtailment of the fluid intake*, when the patient has become unconscious.

INDICATIONS FOR TREATMENT

The indications for treating this dehydration are twofold: to prevent further loss of fluid by removing the cause, and to promote reaccumulation of the lost fluid. The first indication is adequately met by the use of glucose and insulin. Concerning the second, however, there is no general agreement about the best method of replacing the lost fluid, and it is with this question that the present communication is concerned.

In order to approach the problem rationally it is desirable first to consider certain principles concerning the normal and morbid physiology of water metabolism. For the sake of simplicity the body may be regarded as a collection of cells suspended in a saline environment. The water of the cell is loosely united to the colloid protoplasm and its electrolytes are mainly salts of potassium. The environment of the cells, on the other hand, consists of a freely circulating, relatively protein-free fluid, in which sodium salts predominate. The blood plasma is merely a specialised subdivision of the extracellular fluid. Claude Bernard pointed out, many years ago, that the body can continue to live only as long as the saline composition of the body fluid is maintained constant within fairly narrow limits, and subsequent work on electrolyte metabolism has tended to confirm this principle and to show that the mechanisms which maintain this "milieu intérieur" constant are amongst the last to break down in disease. Gamble, Ross, and Tisdall,[9] for instance, have shown that the water loss which occurs during starvation is accompanied by a loss of sodium and potassium salts in equivalent amounts, the concentration of electrolytes in the remaining body fluids remaining unchanged. To the clinician, the importance of this principle lies in the fact that morbid dehydration is always a matter of loss of *body fluid*, not merely of *body water*. Diabetic coma is no exception to this rule, for Atchley et al[1] have recently shown that considerable losses of sodium and potassium salts, as well as of water, occur in diabetic subjects when insulin is suspended. To attempt to correct the dehydration with water alone is therefore to invite dilution of the electrolytes of the remaining body fluids. That such dilution is undesirable has been shown by Moss[12] who found that in miners who had lost salt and water by perspiration, the immoderate consumption of water led to unpleasant symptoms (water intoxication)[13] which could be avoided by addition of salt to the drinking water. In the more severe dehydration of diabetic coma the danger of water intoxication must be considerably greater, and it is possible that some of the unexplained deaths which have occurred during treatment may have been due to this cause. The fact that dehydrated diabetics do sometimes retain plain water simply means that the body, faced with the dilemma of desiccation or water intoxication, chooses the latter as the lesser evil.

I have shown elsewhere[6] that a régime of glucose and insulin, which forms the basis of the modern treatment of coma, tends to deplete both the extra- and the intracellular fluid compartments, apparently because it involves a sudden curtailment of the normal mineral intake. The importance of ensuring an adequate intake of mineral in the treatment of coma is therefore sufficiently apparent.

TREATMENT

The extracellular fluid loss.—As far as the extracellular fluid loss—undoubtedly the most serious problem—is concerned, an attempt is generally made to restore the lost fluid by intravenous injections of normal saline. Provided that the injection is given slowly and its amount limited to 500–600 c.cm., the immediate results are excellent, but the method has serious limitations. 500 c.cm. (or one pound) is only an insignificant fraction of the total extracellular fluid loss, which is often measured in stones rather than pounds; and the effect of such an injection is correspondingly evanescent. Lawrence[11] and others, appreciating the situation, recommend the use of intravenous saline in more heroic doses. In view of the grave circulatory collapse which always accompanies neglected coma, the wisdom of such measures is open to serious question. On more than one occasion I have seen fatal pulmonary œdema follow the too enthusiastic use of intravenous saline. In my experience, by the time the effect of the initial saline has begun to wear off, the patient can generally be roused sufficiently to swallow fluid and, although his condition remains extremely critical, the further correction of dehydration can then be accomplished more safely by oral administrations of saline.

The following routine yields satisfactory results and has been employed in the dietetic ward of the London Hospital during the last two years. The patient is treated as a case of profound shock. He must be kept warmly covered by blankets, and as he is usually very restless this entails constant supervision. Enemata are strictly forbidden. Immediately after admission he is given 50–100 units of insulin intravenously, followed by 500 c.cm. of normal saline. The latter must be warm and must be given very slowly. Meanwhile, enough glucose, &c., to last the patient for 24 hours (usually about 500 g.), is dissolved in about two litres of half-strength physiological saline (i.e., about 0·5 per cent. NaCl) to form a solution which is given to the patient, by mouth, in 24 equal hourly doses, accompanied by subcutaneous injections of suitable doses of insulin. As a rule, from 10 to 20 units are injected every hour until the blood-sugar, which is estimated hourly, has fallen to normal. The patient is also encouraged to drink freely from a feeder containing tepid half-normal saline, which is replenished at frequent intervals. Half-strength saline is advised for the following reason. When normal saline is used, both salt and water are almost quantitatively retained and very little is excreted. With the more dilute solution on the other hand, the relative excess of water over salt promotes sufficient diuresis to ensure a reasonably complete elimination of metabolites and also helps to cover the insensible loss of (salt-free) water from the lungs. The fact that the kidney is able to excrete extra water much more easily than extra salt is an additional argument in favour of hypotonic saline. The glucose and saline mixture described above is well tolerated by the patient and seems less prone to cause vomiting than glucose dissolved in water. It should be given in small mouthfuls. If the patient cannot be roused after the first intravenous injection, and further infusions are considered inevitable, the greatest care should be taken to see that the fluid is injected slowly enough to permit diffusions into the tissue spaces without burdening the heart.

The above routine should be suspended as soon as clinical evidence of dehydration disappears, otherwise œdema is apt to appear during convalescence. This, the so-called "insulin œdema," appears to be nothing more serious than a swing of the pendulum from desiccation towards waterlogging and need cause no alarm. Its response to salt restriction is prompt and permanent.

The following data obtained from two cases of advanced diabetic coma * illustrate the extent of the salt and water deficit and the satisfactory results of oral saline administration. In the first case 26·9 g.* of sodium (68 g. of sodium chloride) was administered, and 25·7 g. (65 g. of salt) were retained. This is equivalent to a retention of over 17 lb. of extracellular fluid, an estimate which was confirmed by a rise in body-weight of over a stone. In the second case 16·8 g. of sodium were administered and 14·0 g., equivalent to 8½ lb., of extracellular fluid were retained. The body-weight rose by nearly 7½ lb. In each case, therefore, the saline ingested was almost quantitatively retained, but in spite of this gross retention of extracellular water no evidence of œdema could be found in either case.

The intracellular fluid loss.—It has been pointed out above that the dehydration in diabetic coma involves the intracellular as well as the extracellular fluid compartments. At first sight it seems rational, in the light of the above observations, to promote restoration of the lost intracellular fluid by administering potassium salts. There are, however, important theoretical objections to such measures. Potassium can only reach the cells by way of the circulating extracellular fluids. The latter contain very little potassium and any substantial increase might lead to unpleasant consequences, in view of the depressant action of the potassium ion on cardiac muscle. Intravenous injection seems, therefore, out of the question. Even oral administration, in solutions containing more than about 20 mg. K per 100 c.cm., seems unwise, for although potassium salts given by the mouth do not raise the potassium content of the plasma in the normal subject,[4] it does not follow that the same is true of the dehydrated diabetic. It is a fortunate though somewhat paradoxical fact that intracellular fluid seems less essential to life than extracellular fluid. Benedict's data on Levanzin [2] who fasted for 31 days, indicate that the loss of extracellular water ceased after the first four days, although destruction of protoplasm, with liberation and excretion of intracellular water, continued until the fast was broken. For these reasons it seems wise, at present, to ignore the intracellular loss and to confine attention to replenishing the extracellular reserves with sodium chloride and water.

It should be emphasised, in conclusion, that the treatment outlined above should not be followed blindly, for each new case of coma presents a fresh combination of problems which may point to modification of the routine in one or more particulars. There is probably no medical emergency which provides a more searching test of a clinician's judgment than neglected diabetic coma.

SUMMARY

In correcting the dehydration of neglected diabetic coma, saline solutions should be used instead of plain water, to avoid the danger of water intoxication. Wherever possible the saline should be administered by mouth in the form of a half "normal" solution (i.e., about 0·5 per cent. NaCl).

I am indebted to Prof. Arthur Ellis for providing access to clinical material, and for first calling my attention to the importance of dehydration in diabetic coma.

* This figure includes the sodium (about 1·9 g.) administered intravenously as normal saline (500 c.cm.).

(*References at foot of next column*)

AGRANULOCYTIC ANGINA AND PENTOSE NUCLEOTIDE

WITH A CASE REPORT

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IN 1922 Schultz [1] described a syndrome characterised by an acute febrile course, extreme diminution of the granulocytes (polymorphonuclear leucocytes) of the peripheral blood, and by foul sore-throat. Since his description, some hundreds of cases of this syndrome of agranulocytic angina have been reported in the United States of America and in France and Germany. In 1931 Taussig and Schnoebelin [2] collected 328 cases mainly from the literature of these countries. Yet up to the present time only six cases appear to have been recorded in this country.[3-8]

All Schultz's cases were fatal, and the mortality in the cases of other workers included in Taussig and Schnoebelin's survey was very high. The following Table is reproduced from their paper:—

Treatment	Cases.	Deaths.	Mortality percentage.
Miscellaneous	178	133	74
Arsphenamine	33	24	72
Blood transfusion	53	34	64
Irradiation	64	34	53

In 1931, however, a new treatment based upon injections of pentose nucleotide was introduced by Jackson, Parker, Rinehart, and Taylor,[9] and in 1932 they were able to report recovery in 51 cases out of 69.[10]

Only two British cases have so far been recorded as having been treated with pentose nucleotide.[6 8] The main purpose of this communication is to report another British case of agranulocytic angina of the Schultz type, and one which recovered apparently as a result of pentose nucleotide treatment.

CASE REPORT

The patient, aged 56, wife of a dentist, was admitted to the Middlesex Hospital on Oct. 20th, 1933.

Family history.—Father died at 76 of cardiac failure. Mother died at 66 of Bright's disease. Two elder brothers and two younger sisters alive and healthy, and no brothers or sisters have died. Three sons aged 23, 21, and 19 who are healthy. No children have died and she has not had any miscarriages. Husband healthy.

Previous illnesses.—In early twenties had numerous boils. Ten years ago, pneumonia and right-sided empyema.

History.—Her general health immediately before this illness was good. On Oct. 10th, ten days before admission

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to hospital, she first began to feel ill with general malaise and headache. On the 14th her doctor, Dr. J. Whitby, was called in and he found her temperature to be 103° F. but she had no signs of any local lesion. The next day she complained of sore-throat, but only generalised reddening was to be seen. On the 16th she developed a cough. On the 17th ulcers appeared in the mouth. By the 19th her general condition was very toxic and septicæmia was suspected; a blood count was performed by Dr. Arthur Davies which showed 900 white cells per c.mm., with only a very occasional polymorphonuclear leucocyte to be seen. Dr. Davies made the diagnosis of agranulocytic angina.

State on admission, Oct. 20th.—Temperature 103° F., pulse-rate 120, respiration-rate 32. The patient, a well-nourished woman, appeared very ill indeed. Her cerebration was very slow, but she was not delirious. The mucous membrane of the entire mouth and throat was very red and studded all over with numerous greyish-white necrotic patches varying from 2 to 20 mm. in diameter. Removal of these sloughs disclosed shallow ulcers. The foulness of her mouth and throat was such that she was admitted to a special isolation ward. The tonsillar glands were

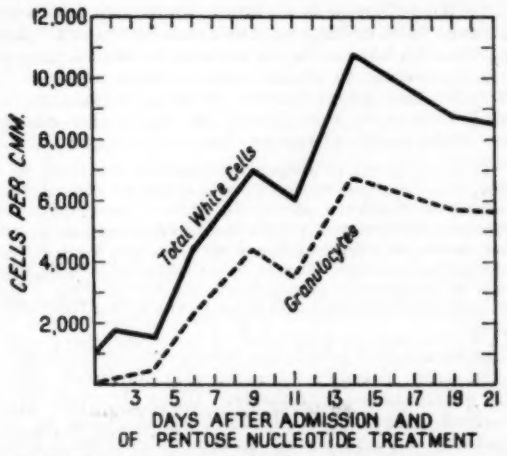

Chart showing increase of white cells and granulocytes under treatment with pentose nucleotide.

enlarged to the size of cherries and were tender. Examination of the heart, lungs, and abdomen did not reveal any abnormality. Blood pressure 135/80 mm. mercury. No enlarged glands were to be felt in the axillæ or groins. The urine showed a trace of protein. On the dorsum of each foot, close to the toes, were a few pin-point petechial spots; there was no other subcutaneous hæmorrhage.

Blood count: red cells 5,100,000 per c.mm., hæmoglobin 80 per cent., total white cells 1000 per c.mm., with no granulocytes seen at all.

Treatment.—(1) Daily intramuscular injections of pentose nucleotide: first to tenth days, 2·8 g. (four ampoules); eleventh to fifteenth days, 0·7 g. (one ampoule). (2) Blood transfusions: first day, 500 c.cm.; second day, 350 c.cm.; seventh day, 400 c.cm. (3) Liberal fluid nourishment. She was given 5 pints of fluid daily consisting of either heavily sweetened milk or lemonade. In the lemonade she had daily half a pound of pulped raw calf liver which was given, on empirical grounds, as being a possible source of raw material for the bone-marrow. (5) Assiduous care, especially in regard to the toilet of the mouth.[21]

Progress.—The progress of her white cell count is best followed when recorded in graphic form (see Figure). The progress in her general condition synchronised with the improvement of her granulocyte count. Thus she remained very ill till the sixth day after admission, and then she seemed to turn the corner and rapidly improve. Her temperature fell to normal on the eleventh day and did not rise again. Her mouth was healed by the fourteenth day. She was discharged from hospital on the thirty-first day after admission and was very well. Her blood count on the day of her discharge showed: red cells 4,000,000 per c.mm., hæmoglobin 105 per cent., total white cells 7000 per c.mm., polymorphonuclears being 57 per cent.

DISCUSSION OF THE CASE

In its clinical features and blood picture this case appears to conform to the classical type described by Schultz eleven years ago,[1] a type whose invariable end was death.

To what then was her recovery due? Was it due to the pentose nucleotide? Jackson and his co-workers claim that cases which recover under pentose nucleotide treatment show a phenomenon of response so consistent that it may be taken as a criterion for judging whether any given case has or has not benefited from the pentose nucleotide. This phenomenon is that no improvement in the granulocyte count occurs until the fourth, fifth, or sixth day of the injections; in fact for the first few days the count may get worse. Then on the fourth, fifth, or sixth day the granulocytes begin to rise and they rise so quickly that the count is within normal limits in another four to six days. They claim that cases which recover when treated by other methods do so in a very slow and irregular manner, and never in the clear-cut way shown by pentose nucleotide successes.[10]

Reference to the graph shows that this patient's granulocyte count certainly did manifest this phenomenon of response in the exact manner stated by Jackson and his associates. This strongly suggests that the pentose nucleotide was responsible for her recovery.

It is true that she had blood transfusions which might have been the cause of recovery. In a sense one regrets that these were given, but it is difficult in the face of desperate illness to place sole trust in a comparatively untried remedy. The American literature reveals that blood transfusions used alone have been almost useless.[10 11]

GENERAL CONSIDERATION OF AGRANULOCYTIC ANGINA

Although accounts of agranulocytosis are to be found in very recent text-books,[12-15] yet the condition is so novel in this country that a short review of its main features may not here be out of place.

By agranulocytosis is meant a reduction of the granulocytes (polymorphonuclear leucocytes) in the peripheral blood below the lower limit of the normal range of concentration. The normal limits for granulocytes as given by Price-Jones [16] are 4000 to 6000 per c.mm. The term agranulocytosis and its synonyms granulocytopenia, granulopenia, and neutropenia, strictly interpreted, have no more specific clinical definitive force than terms such as leucocytosis or anæmia. They merely describe a certain state of the blood, and, in fact, there are several conditions in which the granulocytes are reduced.

Granulocytopenia occurs to some extent in most bacterial and protozoal infections, unless accompanied by secondary coccal infection. Extreme agranulocytosis may sometimes follow upon an overwhelming infection of any kind, such as pneumonia or pansinusitis, and for this type Jackson and his associates prefer to reserve the term "malignant neutropenia." Granulocytopenia forms part of the picture which is found in general depression of the bone-marrow in idiopathic aplastic anæmia or following poisoning by benzol, arsphenamine, bismuth, lead, or ingested radium or mesothorium. The same picture occurs from irradiation by X rays and radium. Leucopenia of the granular cells is also found in several of the deficiency or nutritional anæmias, such as pernicious anæmia, and in lymphatic leukæmia, splenic anæmia, and Hodgkin's disease.

Agranulocytic angina, also called primary or idio-

pathic agranulocytosis or granulocytopenia, is only a special and rare variety of agranulocytosis, but it is the variety characterised by the most extreme reduction of the granulocytes. Whether or not the condition is a clinical entity is still open to question. The present trend of opinion, however, is to accept it as such. Its distinction from the other granulocytopenic states is by a process of exclusion—a failure to relegate it to the position of a secondary manifestation.

Primary agranulocytosis of the type described by Schultz,[1] and generally known as agranulocytic angina, occurs mainly in middle-aged and elderly females. The onset is with malaise, general aches and pains, headache, high temperature (100° to 105°), and rapid pulse-rate. Either at the onset, or very shortly afterwards, there are symptoms and signs of local infections of which the throat is the commonest site, but other sites may be the mucous membranes of any part of the alimentary canal or of the respiratory or urogenital tracts or skin. There may be brawny induration in the subcutaneous tissues. The cervical lymph-glands may or may not be enlarged.

The patient is extremely toxic and may be delirious. Death occurs in from a few days to a few weeks, spontaneous recovery in untreated cases being very rare.

The blood count typically shows a reduction in the total white cells with extreme reduction of the granulocytes which in severe cases may be completely absent. The total white cells are not infrequently under 1000 per c.mm., and a count as low as 80 white cells per c.mm.[14] has been recorded. Hence the lymphocytes usually show an absolute decrease though, of course, a relative percentage increase. Occasionally there may be an absolute lymphocytosis. The red cell and platelet counts are typically within normal limits.

The local infections show all sorts and kinds of organisms, as may also the blood when cultured. All the infective manifestations are regarded as secondary to the absence of granulocytes. The agranulocytosis has been shown by Roberts and Kracke[17] definitely to precede the infective manifestations.

On mucous membranes the most characteristic lesions are ulcers covered with greyish-white membrane. In the mouth, the tonsils, pharynx, palate, gums, and tongue may all be involved. There may be extensive gangrene. The indurated subcutaneous lesions may slough, but pus does not form while the blood is agranulocytic. Jaundice occurs in some cases.[18] Subcutaneous hæmorrhages or bleeding from mucous membranes do not occur, except that occasional petechial spots may sometimes be found. Albuminuria is usual.

The infective lesions when examined histologically after autopsy show a peculiar reactionless character. There is no barrier of polymorphonuclear leucocytic infiltration.

The cause of agranulocytic angina is not known and has occasioned much debate. The granulocyte has a short life, workers such as Sabin[19] and Weiskotten[20] give its allotted span as being about three or four days. Hence the normal concentration of granulocytes in the peripheral blood represents the dynamic equilibrium established between the births and deaths of these cells. The body's population of granulocytes is a rapidly changing one.

Theoretically, agranulocytosis might result from either deficient formation or excessive loss or destruction of granulocytes. Study of the bone-marrow at autopsy and during life by means of sternal biopsy seems to have established that deficient formation is the cause in agranulocytic angina. The reason for the deficient formation remains a mystery. It may be some peculiar blight, infective or otherwise, of the marrow, as is held by Lescher and Hubble.[21 22] Or it may be a failure in the supply of some factor essential to granulopoiesis, analogous to similar failure in regard to erythropoiesis in nutritional anæmias; this is the hypothesis of Fitzhugh and Krumbhaar.[23]

Watkins and others have made the observation that patients developing primary agranulocytosis have frequently taken amidopyrin or a barbiturate for varying periods before their illness. Watkins finds such a relationship in 24 out of 32 Mayo Clinic cases.[22] However, he omits altogether to give any figures as to the doses taken, and he admits that enormous numbers of people take these drugs without developing agranulocytosis. He suggests that possibly the agranulocytosis may be an idiosyncratic manifestation. My patient has taken very occasionally a few tablets of drugs of this type—few wives of doctors or dentists have not—but she had not taken any at all within many months of her illness.

The bone-marrow is an organ whose blood-forming functions have undergone much elucidation in the last two decades, but much yet remains to be determined. It is interesting to realise what a large organ it is. Wetzel[24] has calculated its average volume to be about 1400 c.cm., or almost the same size as the liver. The words of Doan[25] are stimulating:—

> "It is important to conceive the cells of the blood as a tissue, and of those of the bone-marrow as constituting an organ with all the potentialities for hypertrophy and atrophy and functional insufficiency that appertain to any other organ or tissue of the body. It has been shown that the bone-marrow delivers its cellular product—as vital to the body economy as any hormonal contribution of the ductless glands—in response to an ever-varying functional demand."

The description which has been given above is that of the acute primary agranulocytic syndrome originally differentiated by Schultz. Other observers have described other types which they consider to be essentially and primarily granulocytopenias. Thus Thompson[26] has described a few subacute cases. Others[11] have reported a recurrent type. Rosenthal[27] records two subchronic cases, and two cyclic cases have also found places in the literature.[28 11]

The diagnosis of agranulocytic angina depends essentially upon the blood count. A blood count should be done as part of the investigation of all peculiar toxic states and in cases with unusual infective lesions, especially of the mouth and throat. Once the fact of agranulocytosis has been established, it remains to determine by a process of exclusion that the granulocytopenia really is primary and not merely a secondary manifestation of the conditions which have already received mention. The differentiation from acute aleukæmic leukæmia may be extremely difficult and depends upon the absence of hæmorrhages in agranulocytic angina and the different age-incidence. The normal red cell count excludes the primary and secondary aplastic anæmias.

PENTOSE NUCLEOTIDE

The treatment of agranulocytic angina would now appear to be injection of pentose nucleotide. Before its introduction the main methods were blood transfusion and the application of X rays to the long bones in small stimulating doses.[3] Jackson and his associates are insistent that no other therapy should be employed during the administration of pentose nucleotide.[10]

The idea behind the discovery of pentose nucleotide treatment was that there must be a stimulus which causes the bone-marrow to produce and liberate

granulocytes. The hypothesis was that the normal stimulus might be liberated products from disintegrating cells of the same type. One of such principal products is nucleic acid and its derivatives. Doan made extensive studies of the subject between 1924 and 1928.[23] He states [25]: "experimental and clinical observation form the basis for attributing to nucleic acid and the nucleotides chemotactic, maturative and initiatory stimuli for the neutrophil myelocytes when the basic mesenchymal tissues from which they arise are in a condition to respond."

It was Jackson who first demonstrated the existence in normal human blood of pentose nucleotides.[30] The nucleotides have the advantages that they are readily soluble in water, essentially non-irritating, and apparently stable in solution.

As already stated, Jackson and his associates first published their experience with pentose nucleotide in 1931,[9] and in 1932 made another communication [10] reporting the results of treating 69 cases of whom 51 recovered. In their cases the average duration of the disease before the treatment started was 7·2 days. They found that cases with no granulocytes at all did as well, when treated with pentose nucleotide, as cases with less extreme reduction.

Pentose nucleotide is prepared under the direction of the Committee on Nucleotide Therapy of the Harvard Medical School, by Messrs. Smith, Kline and French Laboratories, of Philadelphia, and marketed under the name "Pentnucleotide." The standard dose advised is one 10 c.cm. ampoule containing 0·7 g. of pentose nucleotide administered intramuscularly twice a day until the white cell count has risen definitely, and thereafter once a day until the count has been within normal limits for at least three days. In desperately ill cases they recommend doubling the dose; this was done in the case reported above.

With a small proportion of patients, reactions (dyspnœa, precordial distress, sweating, or vomiting) have been reported. If reactions occur the drug should be given in divided doses into a site previously anæsthetised by novocain and adrenaline.

The very important phenomenon of the characteristic delayed response to nucleotide has already been stressed. Jackson points out that relapses may occur in cases of agranulocytic angina and that one must be ready to resume intensive nucleotide treatment if necessary.

I wish to thank Dr. G. E. Beaumont for help and advice with the case recorded above, and also Dr. L. E. H. Whitby and Dr. F. P. Lee Lander for kindly performing the blood counts.

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POSTURAL DEFORMITIES AND BONE GROWTH *

AN EXPERIMENTAL STUDY

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POSTURAL deformity, in its simplest form, consists in the persistent adoption of some posture, which, though unusual, is yet within the range of postures of the normal individual. Such persistence leads to alterations in the soft tissues, especially shortening of muscles and ligaments, which set a limit to movement and variation of posture. Subsequent changes commonly occur in the form of bones, but it has remained uncertain whether such changes occur in healthy bone, or whether they are confined to bone affected by pathological conditions.

For some years I have been making an experimental investigation of the effects of postural deformity upon the bones and muscles in a series of healthy rabbits. The postural deformity has been brought about in a variety of ways. Splints have been applied, which cause alteration of the resting posture and of the movements of locomotion. Changes of posture and gait have been induced by section of or interference with the nerve-supply of some single muscle or group of muscles.

These experiments have shown that changes in the form of healthy bones do result from the adoption of unusual postures in growing animals. No changes, on the other hand, could be recognised in adult animals. If they occur after obliteration of the epiphysial lines, they have remained undetected on account of their insignificant character.

Bones normally undergo changes of form during the period of growth. It has now been found that these changes are influenced by posture. We have thus an instance of the developmental generalisation that the manner in which inherited form-potentialities are realised during development depends on function. Now in view of the frequent occurrence in clinical work of deformities of bones suffering from pathological conditions emphasis must be laid on the distinction between these deformities and the varieties of form which, as I have shown, may be acquired by a healthy bone during the functional period of its development.

MEDIAL THIGH ROTATION AND ITS EFFECTS ON STRUCTURE

In this paper attention will be directed mainly to the modifications of the form-changes during growth which affect the tibio-fibula and distal end of the femur in the rabbit after section of the common

* Based on a paper read before the British Orthopædic Association in June, 1933, at Cambridge.

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obturator tendon of one side. To this tendon are attached not only the obturator externus but also the obturator internus and gemellus muscles. By section of this tendon (and removal of a short portion) all the important lateral rotators of the femur are thus put out of action and the immediate result is a *medial rotation of the thigh*. In some animals repair of this tendon occurs and approximately normal postures and movement are regained. But in most young animals the postural deformity is progressive until the popliteal space at last faces almost directly laterally.

Now medial rotation of the thigh in an animal such as the rabbit which ordinarily has its knee in a semi-flexed position results in a lateral displacement of the foot, which rests on its inner border, and the shank is directed obliquely downwards and laterally. This orientation of the limb-segments is observed both in the resting posture and during locomotion. The distribution of pressure at the joint surfaces of the knee becomes similar to that in a human case of genu valgum, save that it is the posterior aspect of the femoral condyles that is mostly in contact with the tibia and not the distal end. Towards the end of a stride the forepart only of the foot is in contact with the ground—viz., by its inner border. Full extension of the knee is not performed in locomotion, as it is in a normal rabbit at the end of a stride.

Animals which have developed this postural deformity exhibit alterations in the relative rate of growth of various muscles, though no extensive change in the total mass of musculature occurs. Modifications in the form of bones are recognisable within about a fortnight in rabbits operated upon at the age of two months, and the deformations become more pronounced with time (Fig. 1). This is true not only of the bones adjacent to the site of operation but also of the bones in the distal part of the limb, far removed from the site of operation. Recognition of these modifications of growth is effected by detailed comparison of structures in the operated and non-operated limbs. Comparison with control animals has in some instances demonstrated the occurrence of structural modifications even in the contralateral (unoperated) limb.

In those experimental rabbits which acquired the more extreme degrees of medial thigh rotation the above postural deformity was relinquished for another consisting of full flexion at the hip and full extension at the knee, with the popliteal space facing laterally and the foot resting on its inner border. The pelvis is tilted down on the affected side. In this position the limb is used less actively for locomotion than in the earlier phase of postural deformity, and the muscles (and bones) of the experimental limb now come to show a considerable deficiency as compared with the unoperated limb. Bone-deformations of an extensive character are observed in the distal part as in the proximal part of the limb.

The changes in form of the *tibio-fibula* have been found to be similar in character in all the animals suffering from medial thigh rotation. The more striking changes comprise (1) retroversion of the lateral condyle of the tibia, apparently due to defective growth of the hinder part of the lateral condyle of the tibia and of the proximal end of the fibula, and (2) alteration in the "torsional angle" of the tibio-fibula (see Fig. 4).

The progress of development of the deformity in the last-named feature is shown in Fig. 1, where the differences of angle in the operated and unoperated limbs are plotted against the length of the post-operative period. It may be mentioned that the maximum difference in the angles as measured in the right and left limbs of a series of control animals was 5° and the average difference 3°.

The changes in form of the *femur* after the persistent adoption of the posture of medial thigh rotation are on the whole more extensive than in the tibio-fibula, but owing to the greater proximity of the site of operation no emphasis will be placed on these changes in the present argument regarding the structural effects of postural deformity.

Extreme degrees of torsional change occur in the femur after section of the obturator tendon (or of gluteal muscles). Reference may also be made to the marked change of obliquity in the femur which follows operations on the gluteal muscles.

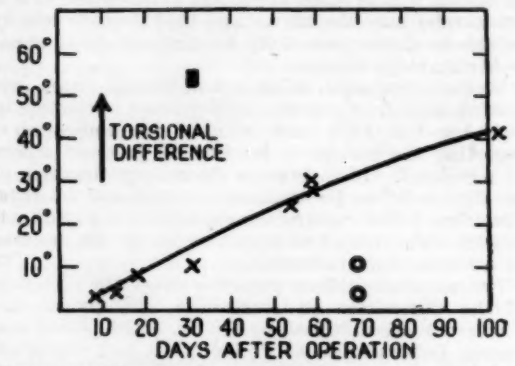

FIG. 1.—Chart showing the progressive divergence of torsional angle of the tibio-fibulæ in operated and unoperated limbs, in a series of rabbits with unilateral medial thigh rotation which were killed at various intervals of time after section of common obturator tendon at the age of 2 months (continuous line). The sign ■ indicates the difference of angle in the two tibio-fibulæ of a rabbit (C 6) in which the medial thigh rotation consequent on operation was complicated by a spontaneous dorsal dislocation of the hip. The slower rate of development of torsional divergence in the hind limbs of animals which were older (3½ months) at the time of operation is illustrated by the relatively slight asymmetry, sign ⊙ developed by the age of 6 months.

THE RESULTS OF SPLINTING

Torsional modifications of the form of the femur occur after the application of a special splint to one shank which induces the rabbit voluntarily to displace the foot laterally by means of a medial rotation of the thigh. The effects upon the form of the femur are pertinent to the present inquiry, for they must be due indirectly or directly to the postural change (they are not due to the direct pressure of the splint).

The torsional divergence between the femora of the two sides attained +8° in a splinted animal killed after three weeks, and +24° in one killed after six weeks (Fig. 2) ("plus" torsion corresponds to "anteversion" of the head).

THE CONTRALATERAL (UNOPERATED) LIMB

It has been mentioned above that changes occur also in the bones of the contralateral limb. In C 6, for example, it was found that there were pronounced torsional deformities of the femur and tibio-fibula, in a direction opposite to those seen in the operated limb in association with medial rotation. Torsion of the tibio-fibula in a series of control animals of similar age ranged from −4° to +13°, the torsional angle of this bone in the unoperated limb was −25°. The normal range of torsional angle of the femur was found to be from −4° to +12°. In this unoperated limb the angle was −24°. Further evidence is thus provided by these changes in the contralateral non-experimental limb that a postural deformity is in growing animals followed by modifications of the normal growth-changes in form of healthy bone.

THE PROCESSES OF DEVELOPMENTAL DEFORMATION CONSEQUENT ON ABNORMAL POSTURE

Certain tentative conclusions have been reached from a study of growth deformations of immature bones. Consideration of the results of histological examination of healthy deformed bones will be deferred to another occasion.

The development of asymmetries of the tibio-fibulæ in animals which have undergone a medial thigh rotation in consequence of section of the common obturator tendon shows that they cannot be attributed to an immediate effect of the operative procedure (which is in the gluteal region) or of local repair processes. This conclusion is supported by the evidence that changes of form also take place in the contralateral non-experimental limb, and after simple splinting without operation.

GROWTH AT THE METAPHYSIS

The failure of animals adult at the time of operation (already noted) to develop any appreciable asymmetry of the skeleton points to the epiphysial cartilages (which may also be termed "diaphysial growth-discs") and the adjacent metaphyses as the main site of development of the deformations. That the chief site of deformation is here is suggested also by a consideration of the changes which take place at the distal end of the femur after section of gluteal muscles (sometimes also after section of the obturator tendon). The obliquity of the femur is changed considerably, and the change appears from detailed measurement to consist in a relatively increased growth of the distal metaphysis on one side. It can scarcely be attributed to local alteration of the rate of growth elsewhere than at the distal end of the metaphysis.

A study of the growth modification in this region indicates also a close relationship between the rate of growth of the cartilage of the diaphysial growth-disc and that of the adjacent bone-formation at the end of the metaphysis. For the cartilage-disc retains its normal width when femoral obliquity is altered in spite of the excessive elongation of the metaphysis.

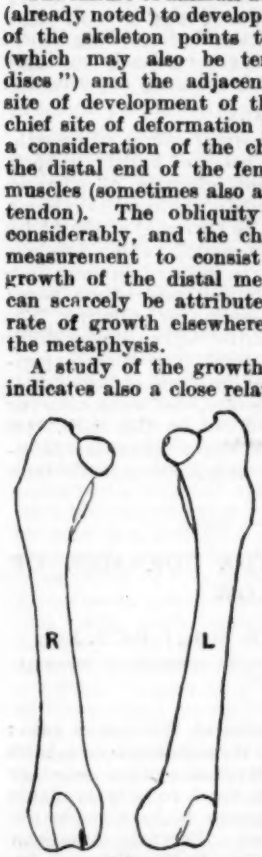

FIG. 2.—Anterior view of femora, showing medial rotation of the distal end ("anteversion" of the head) and decreased obliquity of the *right* femur after splinting of the right limb below the knee.

RESULTS OF INCREASE OF PRESSURE

The posture adopted with medial rotation of the thigh has been described above. It is such as to throw excessive pressure stress on the lateral condyle of the tibio-fibula, while the pressure on the medial condyle is presumably diminished. Associated with this postural deformity we find a deficiency of growth in length of the proximal metaphysis of the fibula and at the hinder part of the lateral condyle of the tibia. This association points to the conclusion that increase of pressure within the limits attained in this experiment is sufficient to hinder growth in length of a metaphysis in the direction of pressure. This conclusion is supported by the study of the contralateral unoperated limb of experimental animals in which the operated limb has been used considerably less than usual.

The contralateral (unoperated) limb.—Comparison of the muscles and bones of this limb with those of control animals of similar age and breed has revealed definite evidence of structural modification. Postural peculiarities of this limb are also recognisable in life.

FIG. 3.—Posterior view of tibio-fibulæ, showing retroversion of the head and medial rotation of the distal end of the *left* tibio-fibula. Postural accommodation of left limb followed operation and postural deformity of the *right* limb.

FIG. 4.—Lateral view of tibio-fibulæ, showing lateral rotation of the distal end, retroversion of the lateral condyle with shortening of the fibula of the *right* side after section of the right obturator tendon and consequent postural deformity. (Scale in centimetres.)

A rabbit with medial rotation of the right thigh consequent on section of the obturator tendon and a spontaneous dislocation of the hip adopted a posture of persistent full extension of the right knee (with the popliteal space facing laterally) and a permanent flexed position of the left knee with the foot directed inwards and forwards. The tibio-fibulæ are shown in Fig. 3 in posterior view (with the patella and remains of ligaments).

There is a marked retroversion of the head of the left tibio-fibula, and a torsional change in a direction opposite to that of the operated limb. The length of the bone (and of the diaphysis) is smaller than that of the right bone if measured to the back of the condyles but greater if measured to the front of the head. Now in the flexed-knee position it is probable that pressure on the back of the condyle is increased. Support is thus found for our previous conclusion that an increase of pressure is associated with deficient growth in length. In the operated (right) limb (with persistent knee-extension) the front of the tibia exhibits deficient growth in length. This deficiency accompanies an enormous hypertrophy of the tibialis anterior muscle and presumed extra pressure upon the fore-part of the head of the tibia.

The conclusion that local increase of pressure causes decrease in the rate of growth in length of the metaphysis thus again finds support in the study of contralateral (unoperated) limbs.

Torsional stress.—A powerful torsional stress acting on the tibio-fibula is provided by the pressure on the inner border of the foot acting against the body-weight transmitted through the limb. Associated with this we find an apparent twisting of the tibio-

fibula in the course of growth in the direction of this torsional stress—i.e., a "plus" torsion.

In the earlier stages of the deformation the apparent twist is below the junction of the tibia and fibula (at the middle of their shafts). Taking into consideration our earlier conclusion regarding the involvement of the metaphysial regions in deformations, this twist is probably one involving the distal diaphysial growth-disc of the tibio-fibula. Either the substance of this disc yields mechanically, or its direction of growth is altered in a torsional fashion. Whichever of these occurs, the direction in which bone is laid down at the distal end of the metaphysis is altered in a torsional fashion. In the more advanced examples of deformation a smaller amount of torsional change is evident at the proximal metaphysial end.

Functional disturbance and growth.—There is evidence of some factor limiting growth of the tibio-fibula other than the local mechanical effects.

The weight of the tibio-fibula of the operated limb is a little smaller (by 1–4 per cent.) than that of the unoperated limb. Measurements, again, from the junction of the shafts of the tibia and fibula to the distal end of the bone, indicate that there is a slight deficiency in growth at the distal end. Some general deficiency at the proximal end is also suggested by the lack of excessive growth in length at the medial condyle in spite of its release from pressure through partial displacement of pressure to the lateral condyle. The actual measurements suggest that the growth in this situation is about equal to or perhaps very slightly greater than in the unoperated limb. On the mechanical hypothesis of deformation we might have expected its overgrowth to correspond roughly to the deficiency at the lateral condyle caused by the excess of pressure.

These observations point to the intervention of some factor other than stress in the modifications of development of bone-form. It is most probably related in some indirect way to the functional inefficiency of the operated limb. Although active use is actually made of this limb, the pressure stresses transmitted through the limb are probably deficient rather than excessive in comparison with the other limb. The skeleton is slightly lighter, the musculature not heavier.

It is not clear what is the nature of this functional disturbance of growth. Possibly it is brought about through the nervous system by disturbance of the normal reflex mechanisms of muscular coördination. Further investigation is indicated in the direction of possible trophic or pressor effects induced by irradiation in the nervous system.

Modifications of bone-growth adjacent to the site of operation.—The femur undergoes considerable changes of form after section of the obturator tendon or of gluteal muscles. Reference has already been made to some of the changes at the distal end. While its growth is doubtless modified by factors similar in kind to those affecting the growth of the tibio-fibula, direct inferences cannot be made concerning the structural effects following postural deformity, owing to the proximity of a healing wound and the formation of scar tissue with its incidental vascular disturbance. The changes of form of the femur will therefore not be considered further in this place.

Altered direction of bone-growth in epiphyses and metaphyses.—There is some evidence that when a metaphysis fails to exhibit its usual growth in length as a result of increased pressure it develops an excessive growth in another direction. Thus retroversion of the head of the tibia is usually associated with a recognisable increase of antero-posterior diameter. Similarly, shallowing of the lateral condyle of the femur (as occurs consistently after certain operations on gluteal muscles) is associated with widening of the distal epiphysis of the femur.

Some indication is offered by these observations that the effect of increased pressure on the end of the bone is a modification in the direction of growth in an epiphysis, and at the end of the metaphysis an overgrowth in directions at right angles to the pressure along with a deficiency in growth in the direction of the pressure.

ALTERATIONS IN THE CONTOUR OF THE SHAFTS OF LONG-BONES IN POSTURAL DEFORMITIES

Pronounced alterations in the form of a shaft of the bone accompany experimentally induced torsional changes of the tibio-fibula (as of the femur). These involve not only those parts of the shaft which have been added by growth in length to the diaphysis subsequent to the commencement of the experiment. They occur in parts of the shaft which at the time of operation were already situated between the metaphyses—e.g., at the site of union of the shafts of the tibia and fibula. It has been well shown by experiments with madder that during growth there is continuous remodelling of the shafts of long bones. These remodelling processes are evidently modified by the postural alterations induced in my experiments.

SUMMARY

(1) Modifications of the normal course of growth-changes in form of the limb bones of healthy animals are caused by the persistent adoption of postures which fall within the usual range of a normal individual. (2) Asymmetry (which may be extreme) of the bones of the two hind limbs of the young rabbit develops when a postural deformity is induced in one limb by local operation or by splinting, and affects bones distant from the site of operation or splinting. (3) Comparison with young control animals of similar age shows that the contralateral limb of an experimental animal undergoes modifications of bone form, due to accommodative posture, no operation or splinting having been carried out on this limb. (4) Recognisable deformations of bones follow the adoption of unusual postures in immature animals only and not in adults.

HERNIA THROUGH THE FORAMEN OF WINSLOW

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Hernia through the foramen of Winslow is rare; and rarer still, as is clear from the published cases, is its clinical diagnosis before abdominal section—whether ante or post mortem. From those records available to me, Sinclair and Tait [1] appear to have made the only correct clinical diagnosis. Recently American radiologists [2 3] claim to have made the diagnosis by barium meals. Ordinarily, however, the barium meal would not be of great assistance; for, while there are cases so chronic or intermittent and indefinite in their course and symptoms as to call for this investigation, the great majority are acute or subacute. The onset in these is sudden. In the acute, either operation is performed or a fatal termination takes place in one to four days or so. In the subacute, symptoms of varying severity may continue for periods of from 16 days (Rawlence's case [3 4]) to five or six weeks (Majoli's case, as quoted by Jeanbrau and Riche [4]). Possibly some of these would be more accurately classified as intermittent and the account of Rawlence's case does suggest release and reincarceration of the bowel

several times before the final attack requiring operation.

Males are the usual victims of the accident. A sudden effort in a semiflexed position of the trunk may be the immediate factor in the bowel displacement, but often there is no violent effort. As suggested by Moynihan,[6] other factors are a large foramen, a long mesentery of the small intestine, a common mesentery for the small and large intestine or lack of the normal fusion of the posterior peritoneal coat of the cæcum and ascending colon with parietal peritoneum. To these, excessive fusion of the mesentery of the proximal transverse colon and lack of development of the right part of the great omentum might be added (see case report below). The small intestine is the most usually affected viscus.

Symptoms in the acute and subacute cases are usually severe. Great pain, referred to the epigastrium, right hypochondrium, and the lower right chest, rarely to the left hypochondrium and in one record to the right iliac fossa, is a prominent feature. Vomiting variable in its frequency and intensity follows. There is cessation of the passage of gas and fæces, which becomes absolute after periods differing in length surprisingly in individual cases.

Physical examination may reveal little at first but later distension is noted frequently and often a special fullness in the epigastrium and right or left hypochondrium. Tenderness and either rigidity or a sense of resistance in the right upper abdomen are found. An indefinite swelling may be palpable, over which the percussion note may be dull [7] or resonant. Occasionally, indeed, liver dullness is obliterated.[8] On auscultation, there may be complete stillness or loud borborygmi. Rectal examination is usually negative.

A diagnosis of perforated ulcer is, fortunately for the patient, likely to be made in the early stages. Later, symptoms of intestinal obstruction with epigastric pain and swelling palpable but not defined might suggest this or some other type of internal herniation, strangulation, or obstruction. Acute pancreatitis does not appear in any of the records to have been suggested as a provisional diagnosis, perhaps because this condition is itself not unusually misdiagnosed as perforation of an ulcer, intestinal obstruction, or very acute gall-stone colic. It produces a very much more intense pain both in the epigastrium and back, more frequent retching and far greater collapse. The site of the pain in hernia through the foramen bears little relation to the part of the intestine involved. It may be provoked chiefly by stimulation of the parietal peritoneum in relation to the inferior vena cava in accordance with Morley's views.[9] Exact preoperative diagnosis, if satisfying, is not essential for successful treatment. Severe abdominal pain with loss of colour, vomiting, and interference with bowel action, persisting for six hours or so and not explained by the presence of one of the "colics" (intestinal, renal, or biliary), cardiac infarction, pneumonia, pleurisy, or nervous affections (e.g., tabes, herpes zoster), demands that its cause shall be elucidated upon an operation table.

Screening the patient might be helpful in this as in other types of acute or subacute obstruction. Radiology [2 3] has, as noted above, claimed successful diagnosis in what might be termed the chronic type of case with long-continued and indefinite dyspepsia. The history of the case related below, both before and after operation, is of interest, as supporting the possible occurrence of this chronic type.

At operation—for the treatment is necessarily operative—diagnosis must be exact and depends upon the recognition of intestine in the lesser sac with loops passing across the site of the hepatic flexure into the foramen of Winslow. Cases [10 11] have been reported where the bowel has arrived in the lesser sac through a rent in the transverse mesocolon and this possibility would need exclusion. The bowel may be delivered by gentle traction or traction aided by digital dilatation of the foramen [1 4] or pressure from the lesser sac,[5 12] which has been approached through the gastrohepatic omentum. In the case described by Rock Carling and Smith [5] the intestine escaped from the lesser sac by this route. It may be necessary to empty the incarcerated bowel by enterotomy before reduction can be accomplished. Enterectomy [13] may be necessary in the presence of gangrene, actual or obviously threatened, or short circuit with drainage of the loop be warranted. Difficulty of reduction might be lessened by flexion of the trunk, the posture of ease adopted by some of the patients. *Débridement* of the lower margin of the foramen is advocated by Jeanbrau and Riche [5] in accordance with their careful anatomical studies. Mobilisation of the second part of the duodenum is suggested by Moynihan.[6] Neither of these methods seems to have actually been used in any of the recorded cases. Nicking of the margins followed by digital dilatation has been practised by Engstad,[12] but a consideration of the anatomy does not provoke great enthusiasm for the first part of this technique.

CASE RECORD

On July 7th, 1930, Dr. N. B. Munn was called to see a man of 47 years on account of severe right-sided upper abdominal pain. It had come on very suddenly, as he rose from a couch upon which he had been resting with his feet raised. He vomited once. The bowels had acted the previous day. The pulse-rate was 72, the temperature 98° F. There was considerable rigidity and tenderness in the epigastrium and right hypochondrium. Dr. J. Finnegan, who had previously treated the patient for a mild intermittent dyspepsia, confirmed the physical signs and a provisional diagnosis of perforated duodenal ulcer was made. When I saw him a couple of hours later he was pale but not very distressed. The temperature was unchanged, the pulse now 80. There had been no further vomiting. The patient lay on his left side with his knees drawn up. The tongue was clean. The abdomen was very slightly distended, more so in the cæcal area. There was tenderness in the epigastrium and right hypochondrium but now only slight rigidity. No abnormality was noted upon percussion and no intestinal sounds heard on auscultation. Per rectum there was no tenderness and the bowel was full.

No abnormal cardiac, respiratory, or nervous signs were observed. The urine was clear.

Operation.—Under ether anæsthesia the abdomen was opened by a right upper paramedian incision. A small quantity of serous fluid came away, the falciform ligament bulged up into the wound and distended coils of small intestine flowed out. The stomach, duodenum, and gall-bladder appeared healthy but through a thin gastrohepatic omentum, moderately distended small intestine was seen in the lesser sac. Similar loops were then observed to cross the hepatic flexure and pass into the foramen of Winslow. Firm but gentle traction succeeded in extracting the bowel from the lesser sac, withdrawal being completed with a typical gurgle. Except for some effusion of blood into its mesentery, the released loop was healthy and it showed no constriction groove.

No estimate of the size of the foramen was made.

The proximal part of the transverse colon was closely applied to the posterior abdominal wall in a greater degree than usual and the great omentum was poorly developed in relation to this part. The omentum was stitched with a few points of chromic catgut suture to the anterior abdominal wall and the wound was closed. Convalescence was smooth and satisfactory.

Further progress.—I am informed by Dr. Finnegan (September, 1933) that the patient has been free from

dyspepsia since the operation. In the interval he has been seen solely for inoculations against colds.

It is a pleasure to acknowledge my indebtedness to Dr. Finnegan and Dr. Munn. The successful outcome of this case is largely due to their accurate observations and their leaning toward immediate intervention, based thereon.

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MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF EPIDEMIOLOGY

AT a meeting of this section on Feb. 23rd Dr. J. D. ROLLESTON, the president, being in the chair, a discussion took place on

Vaccination: the Modern View

Dr. S. MONCKTON COPEMAN, F.R.S., in opening the discussion, said he assumed that the main purpose of this discussion was to consider both the scientific and the administrative sides of vaccination, with the view of indicating what, if anything, should be done in the way of an alteration in administrative measures based upon present knowledge. He gave a short account of the scientific work and legal enactments which had led up to the present position. The main legal measures were the Acts of 1840, 1853, 1867, and 1898, the last of which was passed in view of the findings of the Royal Commission of 1889–1896, which inter alia introduced the "conscience clause." The speaker gave evidence before that commission mainly in reference to his method of preserving and purifying vaccine lymph by treating it with a 50 per cent. solution of glycerin in water or normal saline. The Act of 1898 embodied many but not all of the Royal Commission's recommendations, including domiciliary instead of stational vaccination; the use of glycerinated calf lymph in place of arm-to-arm vaccination; and extension of the age-period for vaccination.

Dealing with the relationship of small-pox to vaccinia, Dr. Copeman said that Jenner apparently believed that cow-pox and small-pox were in some way related to each other, but never proved it, so that down to the end of the nineteenth century vaccination as a prophylactic rested wholly upon an empirical basis. He showed slides illustrative of experimental work demonstrated to the Royal Society in 1902, involving the "passage" of human variola virus through monkeys, from which in turn calves were vaccinated, eventuating in the production of typical vaccinia in these animals and in children. These experiments, accepted as "virtually decisive," had since been condrmed by the outcome of the biological investigations of Mervyn Gordon, Craigie, and Tulloch. With regard to the question of compulsion, he said that a change had recently come over the scene because practically all the cases of small-pox in this country for many years past had been of the mild form, known as variola minor, the virulent form having been conspicuously absent. Moreover, the minor form bred true, and the mortality was so very small that high authorities had suggested that there would be no harm in abstaining from vaccination and other measures, including isolation in hospital, the disease being allowed to take its course. Post-vaccinal encephalitis was unfortunately nowadays an occasional though very rare complication of vaccination, but not peculiar to that disease. If certain recommendations of the Rolleston Committee were generally adopted this complication was likely to become of negligible importance. Under all the circumstances, and especially in view of the fact that general vaccination of the community was an impossibility, there would seem to be a fairly good case for the removal of the compulsory element in vaccination, provided that the necessary administrative machinery be retained in view of possible emergencies. Dr. Copeman added that as the outcome of recent advances in bacteriological science and technique it should become possible, before long, to substitute a pure culture of the specific virus of vaccinia for his glycerinated emulsion of calf vaccine pulp which had been officially in use in this and other countries since its introduction more than 30 years ago. If and when such a change should appear desirable it could doubtless be accomplished without further Parliamentary sanction, in view of the fact that Section I. (3) of the 1898 Act defines the vaccine for official use as "glycerinated calf lymph—or such other lymph as may be issued by the Local Government Board."

Dr. MERVYN GORDON discussed the serology of vaccinia with special reference to a specific antibody that causes visible flocculation of the virus, and had recently been shown by Craigie to owe its effect partly to agglutination of the elementary bodies, and partly to precipitation of their extract. Flocculating serum prepared against vaccinia was equally specific for the viruses of variola major and minor and had been shown by Tulloch and Craigie to have a definite practical value in the diagnosis of small-pox. Tulloch and Craigie had also found that such serum has valuable anti-infective properties, and this observation had been said "to raise a hope that small-pox contacts might be passively immunised with a reasonable expectation that the disease would be aborted even in circumstances where vaccination might not prevent infection." As regards recent work on allergy, Wilson Smith had shown that a boiled extract of vaccinia virus excites a specific cutaneous reaction in vaccinated subject, and Craigie had proved that a similar specific reaction is evoked by the elementary bodies.

Prof. J. C. G. LEDINGHAM said that during the last five years the annual incidence of the mild small-

pox in this country had steadily fallen, only 2039 cases having been registered in 1932. The case-fatality rate ranged from 1·4 to 4·2 per 1000, the corresponding rate in the U.S.A. being only 3 per 1000. The figures for post-vaccinal encephalitis in the years 1930, 1931, and 1932 were 6, 7, and 2 respectively. The occurrence of a few cases of this nervous complication had usually coincided with mass vaccination. He proposed to discuss the nature of the viruses of small-pox and vaccinia and post-vaccinal encephalitis, with a word on the compulsory aspect of vaccination.

The nature of the viruses.—It had now been satisfactorily demonstrated that the elementary bodies observed by Paschen in 1906 in material from small-pox and vaccinia lesions really constituted the virus elements. It had been shown that such bodies alone had the power to infect, the fluid menstruum in which they were suspended being quite inactive. Also, suspensions of elementary bodies extracted from mild small-pox cases in England had been shown to be agglutinable in the presence of sera from small-pox cases, while like suspensions of elementary bodies present in the early vesicles of varicella were agglutinated by the sera of chicken-pox cases and convalescents. Hence the laboratory could now give valuable help in cases of doubtful diagnosis, there being no serological affinity between variola and varicella. He spoke of the valuable work of Goodpasture in infecting the chorio-allantoic membrane of the growing chick embryo. There was good evidence that such lymph prepared in the chick embryo retained its potency in the stored state for months, probably years. Goodpasture and Buddingh had carried through 85 successive generations on the living chick embryo membrane. With lymph of this kind belonging to the sixth passage, and stored at 0° C. for five months, six out of seven persons were successfully vaccinated, and had typical reactions. None had scars of a previous vaccination. The egg method must be regarded as involving an infection of the living animal but yielding a bacteria-free lymph. Another method which had been found applicable to the mass production of lymph was growth in the presence of living or living and growing tissue cells. The virus had been grown also on media containing no living cells but only their protoplasmic debris. Centrifugalised filtrates of vaccinia containing only the elementary bodies could be used. These bacteria-free lymphs seemed well suited for the intracutaneous method of inoculation.

Post-vaccinal encephalitis was a serious though rare sequel of vaccination, and it must remain a stimulus to further research into encephalitic syndromes, whether following virus infections or of independent origin. There seemed to be good grounds for the belief that vaccination might cause an exacerbation of concurrent bacterial and other infections. Indeed, in Germany it was declared that such disturbances would largely disappear if adequate care were taken to select for vaccination only sound people who apparently harboured no diatheses. The essential lesion in the central nervous system of fatal encephalitic disturbances following vaccination, small-pox, measles, influenza, and possibly varicella, rubella, and mumps, was a demyelination of nerve-fibres in the neighbourhood of blood-vessels. Marsden and Hurst had given to this condition the name "acute perivascular myelinoclasis." With regard to those symptom-complexes of independent origin to which the names "disseminated encephalomyelitis" and "acute disseminated sclerosis" have been applied, Prof. Ledingham said that the histology of certain groups of these cases bears a strong resemblance to that found in the post-viral encephalitic complications now under discussion. The one missing link in the proof that the encephalitis following vaccination or measles was an activated syndrome, was the failure to show that any virus or pathogenic agent could be recovered from the nervous tissue and communicated to some susceptible animal. So far, the vaccinia virus had not been recovered from the cerebro-spinal fluid after a normal vaccination in the human; but there was evidence of its presence in the cerebro-spinal fluid in post-vaccinal nervous disturbances which, ultimately, were found to be due to tuberculosis or other inflammatory process. The concurrent infection probably interfered with the normal disappearance of the virus from the body. While the characteristic histology of fatal cases of encephalitis following vaccinia, small-pox, and measles remained the chief argument for the view—which the speaker shared—that some common latent virus declared itself under the stimulus of another virus infection, there was still lacking knowledge as to the nature of this virus. An encouraging sign of a better grasp of the matter was the fact that if one likely animal did not react to a suspected virus, another animal, however unlikely, might do so—e.g., the yellow-fever virus could infect some species of monkey but not others, while it was by chance discovered that it would easily infect mice. The virus of the recent outbreak of encephalitis at St. Louis (U.S.A.) was found to be readily transmissible to mice but not to monkeys. Sabin this year recorded the recovery of a virus readily communicable to rabbits from a fatal case of the ascending Landry type following the bite of a seemingly normal monkey, and associated with the presence of necrotic foci in some abdominal viscera.

Administrative practice.—Prof. Ledingham concluded by stating his views on the question of compulsory vaccination against small-pox. In a discussion in 1929 he pleaded for continuance of infant vaccination on an entirely voluntary basis, supported by the fullest informative propaganda. His attitude still remained the same. Despite the fact that the Association of Public Vaccinators predicted at their meeting in 1933 the most lugubrious results if compulsory vaccination were to cease, the speaker considered that the bulk of responsible opinion would favour the abolition of the compulsory element, and the placing of vaccination on a free and voluntary basis, beginning with the infant, and repeating at school age and early adult life.

The PRESIDENT said he hoped views would be expressed as to the desirability of bringing this matter again before Parliament. He referred to the recent German order forbidding antivaccination activities in that country, and said he was still in favour of the retention of the compulsory clause, though he felt he was now in the minority. The fact that in Bulgaria, Czechoslovakia, Austria, and Hungary no cases of small-pox had recently been reported he attributed in large measure to the enforcement of vaccination on the general population. There was always the danger that a parallel to the epidemic originating in the s.s. *Tuscania* might occur. He did not doubt that there was a causal connexion between vaccination and the kind of encephalitis which had been discussed.

Dr. E. W. GOODALL questioned the view expressed that variola minor was a separate entity from virulent small-pox. Post-vaccinal encephalitis seemed to have been a matter entirely of recent years, as he never saw such a complication before the great war. He did not agree with the abandonment of the compulsory clause, but he would not work it relentlessly. Much of the success in bringing matters to the present satisfactory state was due, he considered, to the practice, started in 1902, of following up contacts and dealing with them.

Dr. J. A. H. BRINCKER asked for further information concerning the serum spoken of by Dr. Mervyn Gordon which gave a prospect of passively immunising contacts with the chance of aborting the disease. He welcomed Dr. Copeman's present attitude on the compulsory aspect of vaccination; he himself had undergone a similar mental transformation on the subject. It was never wise to neglect the psychological side of these questions, remembering that man was a complex individual. He would like to hear

more of the ultimate essential difference between variola major and minor.

Dr. R. P. GARROW said that variola minor had no tendency to spread furiously through the community. He favoured the view that variola minor was a different disease from variola major; yet the returns did not distinguish them. He did not think there was need for any legislative alteration in regard to variola major, as its control by vaccination was the best instance of prevention ever devised; but he agreed with those who said they would rather have variola minor than vaccination. London had always had a few cases of small-pox, hence the population had been fairly "salted"; neither vaccination nor isolation had quite stamped it out.

Dr. COPEMAN, in reply, agreed that the encephalitic complication was of comparatively recent occurrence

Dr. MERVYN GORDON, replying to Dr. Brincker, said an experimental serum had been prepared by Prof. Tulloch by immunising rabbits against virulent strains of vaccinia virus. He found he could get a good protection with this serum experimentally.

Prof. LEDINGHAM, in reply, said he thought the time had now arrived when people should be left to decide for themselves on this question, but helped in forming a decision by widespread informative propaganda as for all other immunisation procedures of proved benefit to the individual and the community. Experience had shown variola minor to be, in all probability, a fixed variant. Experimentally it behaved like variola major but it was not unlikely that the virus of variola might be shown to comprise more than one serological type like, e.g., the virus of foot-and-mouth disease.

MEDICAL SOCIETY OF LONDON

A MEETING of this society was held on Feb. 26th Sir JOHN THOMSON-WALKER presiding. Prof. E. D. TELFORD (Manchester) opened a discussion on

Arterial Disease of the Extremities

He confined his remarks to three lesions of the peripheral arteries, basing his observations largely upon the work he had done with Prof. J. S. B. Stopford during the last nine years. The three lesions selected for discussion were the vascular complications of cervical rib, Raynaud's syndrome, and thrombo-angiitis obliterans. These constituted a group with a definite family likeness, inasmuch that in all three spasm played an important if not predominant part.

Cervical rib.—Certain cases of cervical rib developed an initial stage of coldness, pallor, and pain, followed after an interval of some months by massive thrombosis of the main vessels of the limb. Prof. Telford had seen seven such cases in three of which some portion of the hand had been lost by gangrene. The customary explanation of interference with the subclavian artery was for many reasons unacceptable. Todd, as the result of work on two of the speaker's cases in 1912, showed that the condition was a vasoconstrictor spasm due to pressure of the rib on the ramus which enters the lowest root of the plexus from the sympathetic cord. Cross-sections of the lowest trunk had been made by Stopford in a number of bodies and occasional examples were found in which this ramus, which contains the bulk but not all the vaso-constrictor fibres to the arm, was found to run as a separate undistributed bundle exactly in that position in which it would be exposed to pressure from the rib. Such pressure produced a constant spasm particularly in the digital arteries. It had not been found possible to imitate this condition experimentally owing to the difficulty of producing a state of chronic irritation of sympathetic fibres, but a near approach to it could be secured by the use of ergot. As part of this inquiry, Macdonald had administered ergot to fowls and the arterial changes so induced had displayed on section a striking resemblance to those seen in cervical rib. These changes began in the smaller vessels and extended gradually to the larger trunks. It was suggested that continuous spasm would by interference with the nutrition of the vessel wall, probably through the vasa vasorum, induce intimal changes which lead to clotting. Prof. Telford drew attention to these cases of cervical rib as affording a clear-cut picture of the rôle of spasm in arterial disease.

Raynaud's syndrome.—Prof. Telford said that Raynaud, in describing the syndrome which bears his name, had postulated a state of intermittent vasoconstrictor spasm and, in spite of later views that local arterial disease might be a cause, his original contention was probably sound. In support of it, the dependence of the attacks on emotion and the familial tendency to such other diseases as spasmodic asthma were important points. Prof. Telford showed illustrations of the severer complications—e.g., sclerodactyly, circumoral contractures, and subcutaneous calcification. He discussed the results of sympathectomy and showed that whilst in the leg they had been complete and permanent in each of 8 cases, of 21 cases in the arm, 10 had been very satisfactory, 8 incomplete, and 3, all cases of advanced sclerodactyly, were failures. There would appear to be important differences between the circulation of the lower as compared with that of the upper limb. In the lower limb collateral circulation was much less free, ulcers healed more slowly and Pickering had shown that there was a raised vasoconstrictor tone in the lower extremity as compared with the upper. It might be that the difference in results lay in the great difficulty, either by anterior or posterior route, of securing a complete removal of all vasoconstrictor paths.

Thrombo-angiitis obliterans.—Prof. Telford offered clinical evidence of the part played by spasm in this condition. It was most unfortunate that claudication was the first noticeable sign because by the time claudication was evident very extensive thrombosis had occurred and at this stage all pulses excepting that in the upper femoral region were likely to be lost. As to the results of bilateral lumbar cord-ganglionectomy, among 45 patients operated upon from six months to three years ago, 23 were very satisfactory, 12 showed some improvement, but in 10, the older men often with gangrene, the results were bad. Prognosis was difficult owing to the variable and erratic progress of the disease. In 120 cases under his observation, one had lasted 23 years without any very serious consequences, but in another case a man died from inferior mesenteric thrombosis within seven months of the first symptom in the calf of the right leg. Some years must therefore elapse before the effect of sympathectomy could be definitely assessed. Finally Prof. Telford discussed the various theories on causation and, in view of the presence of spasm and the striking resemblance to the vascular form of ergotism, suggested tentatively that the cause may be some toxic agent acting by excitation of vasoconstrictor fibres.

He concluded his remarks with a warning against the operation of sympathectomy in older men suffering from claudication or gangrene due to arterio-sclerosis.

Dr. PARKES WEBER said it was very difficult to judge of the effects of treatment of cases of thrombo-angiitis obliterans, as intermissions—sometimes long ones—were a part of the natural course of the disease. He quoted a very bad case of his own in which a cure had ultimately resulted without much special treatment, apart from securing periods of rest and adopting measures to favour hyperæmia of the parts. The patient now had definite arteriolo-sclerotic changes, which could be regarded as degenerative.

Sir WILLIAM WILLCOX said that practically all one could do for these patients was to give them morphia to relieve the excruciating pain; in advanced

cases any idea of possible drug addiction must not be considered, the predominant need being to give relief from the pain. Ultimately the only measure seemed to be amputation.

Dr. A. CAWADIAS said that an extensive experience of early cases of endarteritis obliterans had led him to believe that the profession as a whole was too sceptical of the results of physical, dietetic, and other medical measures. There were at the base of the condition disturbances of certain regulators of the metabolism, in the adrenals and the pancreas, which would explain the constitutional factor. He had found the oscillometer useful as a means of early diagnosis. Medical treatment did much to relieve these patients, but he was always ready to pass them to the surgeon if there was need. Pancreatic extract acted on the condition, as also did infra-red radiation and weak galvanism. Early cases he had seen diagnosed as varicose veins and flat-foot, the essential state not having been recognised.

Mr. NORMAN LAKE spoke of a case of generalised sclerodermia in an elderly woman, and said that he believed that sclerodermia was not one clinical entity. In the case described there was no evidence of any attack indicating spasm of cutaneous vessels. He discussed reasons for a different response to operation in the upper and in the lower limb. In many cases failure to relieve by operation must be due to inadequate removal of essential tissue. In the upper limb he had used the posterior route of approach to the ganglion in 18 cases, but recently he had tried the anterior route, and found it better, more convenient for the anæsthetic, and convalescence was easier afterwards. Prognostic tests in his experience of these cases were of qualitative, but not always of quantitative value.

Mr. W. H. OGILVIE said the surgical results described by Prof. Telford had been so extremely good that it was reasonable to sound a note of warning. Sympathetic nerve surgery must be used with the discrimination of the policeman rather than with the recklessness of the gangster; results must be very critically regarded, especially in reference to late effects. It seemed that the control of plain muscle was not a nervous one in the same sense as that of voluntary muscle, but rather due to chemical substances. The sympathetic acted by liberating these substances in the muscle, rather than by direct effect. He had seen almost miraculous results from ganglionectomy in Raynaud's disease at first, followed later by a return of the attacks. This was mostly due, he considered, not to incomplete removal of tissue at operation, but to the capacity of plain muscle to regain chemical control. He thought most surgeons had now discarded periarterial sympathectomy in favour of ganglionectomy in these conditions. In regard to tests, he now used the simple environment test.

Dr. LEVY SIMPSON said that experience at the Mayo Clinic coincided with that of Prof. Telford, that the results of operation in the lower extremity were always good and permanent. In the upper extremity the results were variable; inadequate removal of fibres was the cause of failure in some cases; and in others, chronic cases, the presence of secondary changes in vessels. The hands were affected more than the feet because they were more exposed and so ulcerated easier. He agreed that there were two kinds of sclerodermia, one due to vasomotor phenomena, the other having an unknown ætiology. He did not regard angiitis obliterans as a disease due to spasm, but as an infection; 30 per cent. of cases had a history of migrating attacks of superficial phlebitis. Causally tobacco was an aggravating factor. Smoking caused a cooling of the limb periphery, and intravenous injection of nicotine lowered surface temperature. At the Mayo Clinic cases were treated conservatively, and when the gangrene had become demarcated, other measures were considered.

Mr. A. DICKSON WRIGHT said that in Raynaud's disease there were complicating factors which assisted in the determination of suitability for operation. On the first sign of sclerodactyly ganglionectomy should be done, as the condition was progressive, and the results of early operation excellent. In advanced cases the spasm was probably due to pressure of the tense skin on the vessels in the fingers. He had had cases of perionychia in every nail which had cleared up, following ganglionectomy, when the underlying Raynaud's disease had been detected. Excessive sweating associated with this disease was also cured by ganglionectomy. He showed slides of a case in which upper limb operation failed to relieve because the second dorsal ganglion was not removed and the branches which went to that ganglion were missed. His aim in these cases was to do the most radical operation possible, if necessary by removing two ribs. Bazin's disease did well with elastic bandaging, but he had brought about a satisfactory cure by doing lumbar ganglionectomy. He referred to complications which might follow these operations, such as neuritis and pleural collapse.

Mr. SIMPSON SMITH discussed the indications for ganglionectomy in the lumbar region.

Dr. DAVID MACMYN said that for operations on the cervical ganglia Dr. Addison, of the Mayo Clinic, devised the intrathoracic approach; he held to that route because it enabled him to do the operation in a bloodless field, to obtain a very adequate exposure, and to remove all the rami which were communicating with the brachial plexus. Dr. Addison considered that the inadequate results in upper limb operations were due to inadequate denervation. In the Mayo Clinic, where Dr. MacMyn had recently worked, great reliance was placed on the vasomotor tests, the cutaneous temperatures being read by the electric thermo-couple; the results of sympathetic ganglionectomy were estimated quantitatively on the basis of the temperature tests.

Prof. TELFORD, in reply, said that not 10 per cent. of his cases showed phlebitis. Sympathectomy could abolish the pain of thrombo-angiitis. Perivacular treatment was now agreed to be incomplete and anatomically unsound. He did not think sympathectomy would benefit massive gangrene, which required amputation of the lower third of the thigh. He had been advised by several experts in heart and vascular practice not to rely on the oscillometer. Many cases were sent to him for operation from the physiotherapy department. He was convinced that the sclerodermia seen in association with Raynaud's disease was of a different type from that seen by the dermatologist. Ramisectomy was the operation of choice. At first he placed a good deal of reliance on the results of tests, but now he held that they gave no more than a rough idea of the condition. He had long observed the caution recommended by Mr. Ogilvie. Relapse, he held, was due to the intrinsic action of smooth muscle; sympathectomy did not control that. Operation was of no use in the face of advanced gangrene.

REVIEWS AND NOTICES OF BOOKS

Radiology of Bones and Joints

By JAMES F. BRAILSFORD, M.D. Birm., M.R.C.S. Eng., Radiological Demonstrator in Living Anatomy, University of Birmingham; Hon. Radiologist to Queen's Hospital, Birmingham, the Royal Cripples' Hospital, and the Warwickshire Orthopædic Hospital; late Radiologist, the Birmingham War Hospitals and Ministry of Pensions Hospitals. London: J. and A. Churchill. 1934. Pp. 500. 30s.

THIS is one of the best books on the radiology of bones that has yet been produced in the English language. The subject is notoriously a difficult one. The cut-and-dried classifications of bone diseases that were accepted in pre-X ray days have suffered considerable modification, for the dogmatic interpretation of X ray appearances that seemed easy in the early days has not stood the test of time. The absence of a satisfactory background of bone pathology makes it difficult to organise the material and obviously this is what the author felt when he decided on his general plan. Instead of giving an outline of the principles involved and amplifying as necessary for various regions, as would seem to be the natural course to adopt, he has arranged his vast material according to anatomical regions in Part I., and has followed this with a short Part II. on general conditions that have not been adequately dealt with in the previous section. This arrangement gives the book something of the character of an atlas. This makes it excellent as a work of reference, but has the disadvantage that a certain amount of repetition is inevitable and that the novice would have difficulty in obtaining a balanced view of the subject as a whole, especially as little stress is laid on the differential diagnosis.

Wisely, Dr. Brailsford has not attempted to make his book encyclopædic, but he has given upwards of 1000 references which not only show the wide range of his researches, but form a most useful guide to any student who wishes for more information. In some sections—e.g., that dealing with calcifications in the cranium—greater detail would be desirable, but those dealing with the hip-joint and spine are most satisfying, collecting as they do the outcome of the author's original work previously scattered in various journals.

The publishers have evidently been at pains to produce the book in the best possible form. It is printed on art paper and the reproductions of radiograms are excellent. Diagrams are plentiful in many cases and are often more telling than the radiograms. There was definitely a need for such a book as this and it may well become and remain for some years the standard text-book on the subject.

A System of Clinical Medicine

Ninth edition. By T. D. SAVILL, M.D. Lond. London: Edward Arnold and Co. 1933. Pp. 1063. 28s.

THE method used in this classical work, which lends itself more to reference than systematic reading, departs from that usually employed in text-books—i.e., the separate description of "diseases"—and takes symptoms as the starting-point; yet this is no mere index of symptoms, since the material is logically divided into different systems of the body. In each of these the chief symptoms caused by disease are discussed before an account is given of the signs and of the clinical classification of the maladies of the system concerned. Treatment is considered, but rather briefly.

Many have found and more will find this arrangement valuable. The clinician with time to correlate his experience with that of others as recorded in books will doubtless base his diagnoses on a knowledge of principles and the integrated facts of his own and other's experience; he will already have tabulated in his mind the possible causes of a presenting symptom. Such a one may not appreciate the plan of this work for his own reading. But for the busy practitioner it will possess a distinct advantage over the text-book of descriptive medicine when he requires quick help in deciding the possible or probable diagnoses of a given case. Originally from a single pen, the book is now inevitably and wisely the result of collaboration by specialists. Dr. Agnes Savill, the editor, expresses in a preface her aim to prevent undue expansion of the book, and this has been accomplished by exclusion of rarities. Some statements may be criticised—e.g., that "chronic Bright's disease is the commonest cause of high blood pressure," and that "bleeding 15–20 oz." should be used as a routine in the treatment of coronary thrombosis. In the treatment of toxic adenoma of the thyroid it is considered that "surgery may be necessary"; a more up-to-date opinion would be that surgery is essential. Not for the first time in a book on medicine by several contributors the section on the nervous system deserves especial praise. This section is very well done and is prefaced by an excellent account of the applied physiological anatomy of the system.

The general production of the volume is good.

Surgery of the Sympathetic Nervous System

By GEORGE E. GASK, C.M.G., D.S.O., F.R.C.S. Eng., Professor of Surgery, University of London, Surgeon and Director of the Surgical Unit, St. Bartholomew's Hospital; and J. PATERSON ROSS, M.S. Lond., F.R.C.S. Eng., Reader in Surgery in the University and Assistant Director of the Unit. London: Baillière, Tindall and Cox. 1934. Pp. 163. 16s.

THE publication of a monograph devoted entirely to the surgery of the sympathetic nervous system is a milestone in the history of surgery in this country, and indicates the great advance which has been made in knowledge since Alexander of Liverpool in 1889 published his observations on the treatment of epilepsy by cervical sympathectomy. Prof. Gask and Mr. Paterson Ross have had extensive experience of this branch of surgery, as the outcome of which they have been able to suggest refinements of technique which are already widely known and accepted. The scope of the monograph includes the whole range of sympathetic surgery as it is practised at present, but quite properly much space is devoted to methods of selecting cases suitable for operation and to the various tests which form a part of the preoperative investigation.

There are, unfortunately, still wide gaps in our knowledge of the anatomy and especially of the physiology of the sympathetic system, and, as is noted in a brief concluding section, information on its pathology is almost completely lacking, apart from tumours arising in the ganglia; but an excellent summary is here supplied of modern ideas on sympathetic distribution and action. There is considerable difference between the views of continental, American, and English authorities on some aspects of sympa-

thetic physiology, and here the authors naturally show a slight English bias, justified by their close association with some of the experimental work upon which these views are founded. But the breadth of their outlook is exemplified in the following quotation upon the controversial subject of peri-arterial sympathectomy:

"At present the trend of surgical opinion in this country is opposed to it, owing largely to the inability of physiologists to reconcile this procedure with the results of their researches, and it has become fashionable to say that the operation has no place in surgery. There is no doubt, however, that in a certain small group of circulatory disorders the operation produces definite improvement, and it is foolish to refuse to recognise the improvement, and to refuse patients the benefit of the operation merely because there is no scientific basis on which to justify the procedure or to explain the results."

This impartial recognition of the great weight of continental opinion supporting peri-arterial sympathectomy gives the reader confidence that the claims made elsewhere in the book for other methods are not likely to be exaggerated, even if the modesty of these claims did not in itself argue in their favour. Particularly interesting to the operating surgeon is the description of the approaches to the stellate ganglion, for here the authors have evolved a route from the front which they have successfully practised on a considerable number of cases, apparently to the exclusion of the more commonly adopted posterior approach described by Adson. Few will have had sufficient experience of both methods to be in a position to compare them, but there can be no doubt that the posterior operation is associated with greater loss of blood; the exposure is somewhat more limited; anæsthetisation (both local and general) more difficult; and convalescence rather more prolonged. From the point of view of ease of performance there is little to choose, but a surgeon used to the posterior route, who tries the technique described in this book will at least be convinced that its merits must not be ignored when the best routine method is under consideration. The earlier anterior approaches, which this replaces, left untouched the second dorsal ganglion from which, as is well recognised anatomically, a contribution to the brachial plexus (nerve of Kuntz) frequently arises. There can be no doubt of the propriety of removing this ganglion, and both the posterior approach, with its resection of portions of the second and first ribs, and the new anterior route, ensure this. In dealing with Raynaud's disease the authors follow the teaching of Sir Thomas Lewis that the disease is a local arterial one, and that a sympathectomy merely lowers the threshold temperature at which the spasm is induced. The vexed question as to why the results in the upper limb are less satisfactory than those in the lower is discussed and explained as due to a greater normal vasoconstrictor tone in the lower extremity, and not, as is frequently assumed, to a less radical operation. It is, indeed, pointed out that the cervico-thoracic ganglionectomy is really the more radical procedure, since it removes the ganglion cells rather than preganglionic fibres.

The chief attention in the chapter on the visceral motor system is directed to megacolon. A well-balanced account of the anatomical basis of the various operations is given, but this does not explain why apparently good results are obtainable by so many methods. Another question of interest is that of a left-sided bias in the supply of the colon and especially the recto-sigmoid region. It is a fact that many of the earlier cases, in which a left-sided sympathectomy alone was performed, gave very good results which have remained permanent for several years, though, as Gask and Ross admit, on anatomical grounds the bilateral operation must be considered the more rational procedure. The ætiological relationship of certain types of bladder dysfunction, hydro-ureter, and hydronephrosis to megacolon is here recognised, but the need for full investigation of such cases before operation is decided on is perhaps insufficiently stressed. In some cases a sympathectomy gives very good results; in others less radical methods of relief may be advisable. It would be futile, again, to expect results from a sympathetic operation where secondary fibrotic changes have occurred. These points apply, of course, to all types of visceromotor disturbance. A final chapter deals with sympathectomy in the relief of pain, and here we find a short but very clear discussion of the cause and treatment of causalgia. Angina pectoris is also considered, and the conclusion reached that a cervico-thoracic ganglionectomy is the best treatment, although the only personal experience of the authors appears to be of a paravertebral alcohol injection, after the manner of J. C. White. That the injection was successful was indicated by the development of a permanent Horner's syndrome, and the result was freedom of pain up to the time of publication.

This book is admirably printed and produced, and the authors deserve praise for a notable contribution to English surgical literature.

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1. Infra-Red Photography

By S. O. RAWLING, D.Sc., F.I.C., F.R.P.S. London: Blackie and Son, Ltd. 1933. Pp. 56. 3s. 6d.

2. Therapeutic Uses of Infra-Red Rays

Second edition. By W. ANNANDALE TROUP, M.C., M.B., Ch.B., Hon. Consulting Electrotherapist, Portman Hospital, Blandford. With foreword by Sir WILLIAM WILLCOX. London: Actinic Press. 1933. Pp. 90 and 19 plates. 6s. 6d.

1. THE use of radiation, using the term in its broadest sense, is now so widespread that any further application either to science or industry arouses interest. Over the whole range of available wavelengths most of the applications to medical science are on the side shorter than the visible spectrum. Infra-red photography provides an example in the other direction and it promises to be of value. Such photographs have been taken for many years, but the recent commercial production of infra-red sensitive materials has placed plates of the required sensitivity within the reach of any photographer. Dr. Rawling's book is intended as a guide to the practice of infra-red photography; it assumes a knowledge of the elements only of ordinary photography. Beginning with a short but adequate chapter on the classification of radiations and the place in the spectrum of the infra-red rays utilised, it goes on to an interesting description of the particular sensitive materials used, on which the whole process depends. The method of using the sensitised plates and their development is clearly dealt with, together with any special apparatus that is needed. Infra-red photography has considerable possibilities in its application to microscopy, although some results already shown hardly do it justice. Merely to photograph stained preparations without much regard to their suitability is not enough. It must be recognised that many substances are inherently transparent to infra-red radiations, apart altogether from staining, which are opaque to ordinary light. Much has been done in England by the Ilford Company in developing infra-red photography but no

special claims are made for this; a detailed description of the productions of other firms is included. The book is an excellent introduction to the use of this process, and it contains enough information to enable anyone to start work in any of the many applications that it specifies.

2. This companion volume to "Ultra-Violet Rays in General Practice" has proved its value. The second edition has been rewritten and brought up to date. Much practical advice is included, and the general practitioner who wishes to experiment with infra-red therapy will find many useful suggestions. The book is not a scientific manual and there is nothing new in the exposition of the subject, but the author's comments on the clinical side, based on wide clinical experience, cannot fail to interest anyone practising this specialty. The results obtained by Dr. Annandale Troup in the treatment of neuralgias, some of them old-standing, are noteworthy. His success in improving the nutrition and muscular function in some neglected cases of infantile paralysis may prompt other workers to use his technique as an alternative to diathermy in these cases.

Chirurgie infantile d'urgence

By M. FÈVRE, Ancien Chef de clinique chirurgicale infantile, Chirurgien des Hôpitaux de Paris. Paris: Masson et Cie. 1933. Pp. 452. Fr.70.

THIS book can be heartily recommended to all those surgeons engaged in the emergency surgery of children. It is very clearly written and precise in its recommendations. The accounts of acute osteomyelitis, appendicitis, and pneumococcal peritonitis may be singled out for special praise. Practice on the whole is very similar to that in England, but local anæsthesia is more often used in France. The tannic acid treatment for burns does not seem to have been adopted nor is the Winnett Orr treatment in use. Yet the author counsels against frequent dressings in osteomyelitis. Vaccine therapy is extensively employed in many infections. The printing and illustrations are of a high standard.

A uniformly well-written and helpful book.

A Laboratory Manual of Physiological Chemistry

Second edition. By D. WRIGHT WILSON, Benjamin Rush Professor of Physiological Chemistry, University of Pennsylvania. Baltimore: Williams and Wilkins Company. Pp. 284. 12*s*. 6*d*.

THIS manual contains descriptions of a large number of good experiments illustrating the properties of substances of physiological interest, some biochemical preparations, and an excellent section devoted to blood and urine analysis in which the modern American methods are given. We doubt, however, whether the presentation is ideal. The method freely employed, that of unanswered questions, means either overwork for the demonstrator or doubt for the student. The assigning of a local habitation to the reagents, whereby for example the reader is ordered to fetch his decinormal acetic acid from the stockroom, might lead to irritation in laboratories where customs are different or stockrooms are missing. We read on p. 44 that "the acidity of the blood may be said to be due to the relative concentrations of carbonic acid and sodium bicarbonate"—just as the speed of a train might be said to be due to the strength of its brakes.

Urinary Infections

By CLIFFORD MORSON, F.R.C.S., Surgeon to St. Peter's Hospital for Urinary Diseases and the Hampstead General Hospital. London: John Bale, Sons and Danielsson, Ltd. 1933. Pp. 76. 2*s*. 6*d*.

THIS little book, although it only contains 76 pages, covers its subject very well. It is written by a urologist for the practitioner or student who is in search of practical guidance rather than theoretical discourse. The tone is necessarily dogmatic, and some statements are made with which other urologists may disagree. Mr. Clifford Morson expresses mainly his personal opinions, mentioning that some other authorities hold opposite views, but space prevents him from stating what these views are. Any defects that are noted in his book—and these are remarkably few—are defects that could hardly be avoided in a work which purports to cover such a large subject as urinary infections in so small a space. The exposition is clear and practical, and can be recommended to anyone in search of an up-to-date summary of symptoms, diagnosis, and treatment.

NEW INVENTIONS

A PROSTATIC RESECTION HOOK

IN the operation of prostatic resection with the McCarthy visual prostatic electrotome it often happens that one or more pieces fail to come away when the loop and telescope are withdrawn from the sheath. Failure may be due to the fact that (1) the piece resected is too large to engage easily in the sheath; (2) the inflow instead of the outflow tap may be open at the time, thus allowing the piece to be washed back into the bladder; (3) the loop may be operated too quickly, thus minimising coagulation and adherence of the piece to the loop. Sometimes with repeated irrigation some of the retained pieces may wash out, but often one or two fail to do so. If these pieces are left behind, complications may ensue. These are (1) sepsis or aggravated cystitis; (2) blocking of the indwelling catheter with retention, and if there is bleeding clot formation; (3) pain and strangury if the piece is passed naturally along the urethra, or retention if the piece becomes impacted. Pieces of course can be removed from the bladder with forceps through an operating cystoscope, but this entails the use of another instrument and the method is not always simple or easy.

To effect easy and rapid removal of retained pieces I have devised a hook, as illustrated. It is made of steel and has two terminal bent prongs. The shaft is the size and shape of that of the loop. To use it the loop is removed and replaced by the hook. The hook is operated by the rack and pinion, and the loose pieces, easily located, are raked back into the sheath and withdrawn. It is advisable to inflow two or three ounces of fluid into the bladder before operating, and care must be taken not to catch the points of the hook in the bladder mucosa. If this happens, advancing the hook will release it.

The Genito-Urinary Mfg. Co., Ltd., Devonshire-street, London, W., are the manufacturers.

F. McG. LOUGHNANE, F.R.C.S. Eng.

THE LANCET

LONDON: SATURDAY, MARCH 3, 1934

THE SUPPLY OF PURE WATER

THE month just passed has earned the name of fill-dyke, for in normal years everything tends to get waterlogged although the actual rainfall is low. But this year already 17 rural districts have made representations to the Minister of Health about shortage of water. Last week the Ministry issued a further memorandum (178 W) dealing with the provision of supplementary supplies and suggesting, in addition to the curtailment of domestic supplies for watering gardens and washing motor-cars, the use of water from non-potable sources, where available, for watering streets and flushing drains, while encouraging consumers to avail themselves of rain water from their house roofs. The Ministry makes the practical suggestion to water companies that they should rewasher defective taps without charge to the consumer, who should be warned that present care may avoid serious restriction later. This is already done by some companies. Although the Ministry reiterates that at present there is no cause for general alarm, mention is made of the circumstances under which the risk of pollution is enhanced, and of the need to see that chlorination is then properly and efficiently carried out. It is at this appropriate moment that the Water Pollution Research Board has issued a warning in these words:—

> "Many rivers which are at present to some extent polluted will have to be utilised in the future as sources of supply, after treatment, to meet the increasing demands of domestic and industrial requirements. In these instances determined efforts to effect improvements in the condition of the rivers are urgently required if costly methods of water treatment and possible dangers to public health are to be avoided."

This warning, repeated from its previous year's report, is given because the Board is impressed with the fact that after many dry months there is still no sign of the heavy and long-continued rains, which alone can ensure a sufficient supply of water for the coming summer.

The Board is mainly concerned in finding and pointing out the means by which rivers not already hopelessly polluted may be brought to something like their pristine purity. The process is simple in principle. The abstraction of water must be controlled, water after use being returned only in a condition of purity approximating to its original state; effluents from sewage works and industrial discharges must be so treated as to cause no more than slight deterioration of the stream near the point of entry, followed by speedy recovery. The surest criterion of sufficient purity in a stream is evidence of healthy fish life; if coarse fish are reasonably abundant the water does not stand in need of much treatment, especially if good storage capacity is provided—and storage is desirable on other grounds. In previous reports the Board has shown how to render harmless even the very troublesome beet-sugar effluents by means of percolating filters; their effect can be enhanced by the addition of phosphates to the liquid to be treated, presumably by supplying what is needed for the rapid increase of the active organisms. The effluent discharged from factories where milk is collected and distributed, or converted into cheese and butter, is so highly charged with organic matter as to be most undesirable in a river. But if the effluent is stored for a day or two to allow the casein and fat to coagulate, and then percolated through graded gravel, the result is satisfactory. This work is not yet complete, but an indication has been given to the dairy industry how to deal with can washings and other waste liquids. Cellulose is another troublesome waste product of some industries; it is very resistant and tends to accumulate on the river bed, where it undergoes anaerobic fermentation. If nitrogen is supplied as ammonium carbonate, oxidation is notably speeded up on the filter; activated sludge treatment has not been so successful. Work on the action of water on lead and on the base-exchange process of water softening is being done at the Teddington laboratory under the direction of Prof. G. T. MORGAN.

The prolonged study of pollution of the river Tees is nearing completion, and valuable results may be expected when all the data are assembled. Never before have chemists, botanists, and zoologists collaborated with engineers on so important a piece of work. Data are also being accumulated on the flow of other rivers, about which little is known, apart from the Thames itself. Sir ROBERT ROBERTSON and his colleagues are to be congratulated on what the Board has already done, and it may well be hoped that more advantage will be taken of its findings than was the case when the Rivers Pollution Commission of 1868 issued its report. A sanguine person of that period might reasonably have hoped that 65 years later there would be little opportunity for research on river pollution in this country. Actually it would now be difficult to find an unpolluted river. Not until our rivers are restored to a state of purity, and their waters are impounded and purified, can the question of distribution be properly considered.

THE STATE AND THE PROFESSIONS

IN recent debates on the Unemployment Bill the professional man has been mentioned along with the black-coated worker. Mr. BUCHANAN, M.P., declared it was vitally important to bring into State insurance the young men who have qualified as doctors but have not yet become self-supporting. He wanted a scheme for crediting them with their insurance stamps for the years during which their attendance at the university has kept them out of the labour market. Another

pesaker referred to the considerable proportion of State-aided undergraduates at Oxford and Cambridge and elsewhere, and spoke from personal knowledge of cases where the parents are themselves subsisting upon unemployment benefit and can make no contribution whatever to the establishment of their sons in a career. Hitherto perhaps the medical profession has been more fortunate than others in finding a living for its qualified students. If the grant of State aid means the overcrowding of particular professions, some quota system of quantitative recruitment seems inevitable. This in turn would involve vocational selection and all the problems of socialised professionalism. Will it be said, on the one hand, that private practice has failed to furnish medical services for all who need them, or, on the other, that the qualified practitioner is entitled to work or maintenance?

The socialization of the professions and the relation of professionalism to the society of the future were among many topics thoughtfully discussed in a striking book on "The Professions" published last year. The authors, Mr. A. M. CARR-SAUNDERS and Mr. P. A. WILSON,[1] summarised the development of a number of callings, the system of specialised education, the codes of professional conduct, and the extent of statutory recognition and protection. They found the elements of professionalism elusive. There was no doubt that the ancient professions of medicine and law could claim attention above many others in such an inquiry, yet no two callings were exactly alike. The "vital" vocation of medicine, for instance, had a proud record of scientific research, whereas the "fiduciary" vocation of law could make no such claim. Or again in the matter of intellectual technique both these vocations could be favourably distinguished from that of the stockbrokers which, the book made bold to affirm, possessed no intellectual technique whatever. If the authors found no absolute criterion of what makes a profession, they classified several unmistakeable attributes. Nurses and midwives, they said, may not earn their qualification by sheer scientific study; they may be concerned only with the application of science; yet, because it arouses a sense of responsibility and a need for personal judgment, their work is definitely entitled to be called professional.

All who are interested in these speculations will find in "The Professions" a valuable historical and analytical survey. The subject has had practical significance in recent years when the architects have asked with success, and the osteopaths and opticians in vain, for Parliamentary intervention. At the moment it is attracting attention afresh. The Institute of Journalists has asked for an official inquiry into the desirability of creating for the profession of journalism a statutory body with functions similar to those of the bodies which exist for medicine, the law, and other professions. No one, say certain reformers, should have the privilege of being described as a journalist unless journalism is his sole or main occupation; the amateur ought to be distinguished from the professional. The first step usually taken by the State in legislating for a profession is to ordain some form of official registration to discriminate between those who have and those who have not accomplished a prescribed period of training or who do or do not maintain a prescribed standard of technique and respectability. As the preamble to the Medical Act illustrates, registration is in the interests of the public rather than of the profession: "it is expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." Mere registration, as registered medical practitioners know well enough, falls far short of monopoly. Parliament may accompany it, as in the case of dentists, solicitors, and patent agents, with a flat prohibition of unregistered practice. Or it may merely penalise those who wrongly pretend to be registered, leaving unregistered practice free as in medicine, surgery, nursing, and architecture. Or again it may be content to provide for registration without any special protection for the registered person's title and description, as in the case of school teachers under the Act of 1907. Nobody will doubt that even this minimum provision adds dignity and responsibility to a vocation. Nor will doctors deny that Parliamentary intervention has been helpful even if it has not been complete. It has created in the General Medical Council a powerful authority for controlling education and discipline. Outside the statute book voluntary organisation through the British Medical Association has admittedly secured tangible advantages. Collective bargaining played a prominent part in the shaping of the national insurance service; the method of the black list prevents the remuneration of medical officers from approaching the vanishing point. But in the end it is the public estimate of professional services that matters; the standard is in the hands of the individual practitioner. We may hold with BACON that every man is a debtor to his profession, "from the which as men do of course seek to receive countenance and profit, so ought they of duty to endeavour themselves, by way of amends, to be a help and ornament thereunto."

[1] Oxford, Clarendon Press. 1933. Pp. 536. 25s.

ADVANCES IN SYMPATHECTOMY

FROM the ashes of an operative procedure of which the flame burnt brightly for a while, maintained by the fuel of enthusiasm, has sprung a new branch of surgery. It will be remembered that, ten years ago, following certain experiments by JOHN IRVINE HUNTER on goats and birds, N. D. ROYLE attempted the relief of spastic states in man by sympathectomy and was satisfied that his patients showed considerable improvement. Other surgeons were unable to confirm his claims, and the operation for spasticity has fallen into disrepute[1]; but it was observed by ROYLE and others that the extremity deprived of its sympathetic supply by section of the grey rami showed evidence of vasodilatation and was warmer than

[1] See THE LANCET, 1930, ii., 127.

its fellow. This incidental discovery has led to a widespread and largely successful attempt to treat by sympathectomy conditions in which the vasomotor mechanism is abnormal, or in which it is desired to improve the blood-supply of the tissues concerned. The theoretical basis of many of the procedures which have been found successful in practice is still controversial, as will be clear from a comparison of some of the views expressed by Prof. TELFORD (see pp. 444 and 458) and those who took part in the discussion at the Medical Society of London, and by Prof. GASK and Mr. PATERSON ROSS in a monograph reviewed on another page. With Sir THOMAS LEWIS, GASK and ROSS take the view that RAYNAUD'S conception of the cause of the syndrome associated with his name was fallacious. It is not, they hold, due to abnormality of the sympathetic system; the removal of sympathetic nerves and ganglia is effective not because they are diseased but because the passage of certain impulses is interrupted by the excision of their apparently abnormal pathways. TELFORD, on the other hand, upholds RAYNAUD'S theory of intermittent vasoconstrictor spasm, rather than local arterial disease, as a cause of the symptoms. Another point of divergence concerns the reasons for the difference between the effect of sympathectomy in the upper and the lower extremity in this syndrome. All are agreed that whereas the result in the foot is almost always excellent, the result in the hand is often disappointing. TELFORD'S explanation is that whereas the lumbar operation insures complete sympathetic denervation of the leg and foot, cervicodorsal ganglionectomy is not equally efficacious in achieving this object in the arm and hand. In some of his cases, certainly, sympathectomy was incomplete in the upper extremity, as shown by persistence of sweating in certain areas; it is likely that the anterior approach described by GASK and ROSS makes it easier to achieve complete sympathetic denervation of the arm. But the persistence of symptoms cannot properly be attributed to imperfect operation alone, because cyanosis of the digits may still occur after complete sympathetic denervation. GASK and ROSS hold that the better results obtained in the foot are due not to anatomical considerations, but to differences in the physiological activity of the vasometer nerves and in the susceptibility of the vessels to cold.

The details of TELFORD'S work in this field during the last three years provide a sterling contribution to sympathetic surgery. He has operated 76 times on the lumbar ganglionated trunk and 24 times on the cervicodorsal trunk; he can thus speak from considerable experience of the technical problems, and his cases have not only been most carefully selected before operation with the assistance of Prof. STOPFORD, but have since been followed up with equal solicitude. Of 45 operations for thrombo-angiitis obliterans half gave great satisfaction to surgeon and patient; a quarter of the patients were distinctly improved and in the remaining quarter, though relief of pain was achieved, the limb had to be removed sooner or later on account of gangrene. Of the 22 operations for Raynaud's disease of the upper extremity only 3 were unsuccessful; 8 gave results clinically incomplete but functionally good, and 11 were completely satisfactory. The success of bilateral lumbar sympathectomy for acrocyanosis in 9 cases marks a definite advance. The limitations of sympathectomy are moreover becoming well defined and their recognition will prevent undue hopes and subsequent disappointment. For example, of the two kinds of pain in thrombo-angiitis obliterans the pain in the foot (rest pain) is relieved by operation; the pain in the calf, known as intermittent claudication, which follows exercise, is relieved to a much smaller extent or may even persist unabated. Scleroderma and sclerodactyly complicating Raynaud's disease, again, are not improved by sympathectomy; this is not astonishing since they are now generally held to be associated with structural disease of the small arteries, resulting perhaps from the prolonged spasm produced by cold.

The most important conclusion to be drawn from this work is the need for early operation, for example in thrombo-angiitis obliterans before gangrene occurs; in Raynaud's disease before ulceration and sclerodactyly supervene; and in Hirschsprung's disease before long-standing obstruction produces organic changes in the colonic musculature. It has been generally held that "medical" treatment must be given in all mild and early cases of these diseases and that surgery should be considered only when they are complicated and severe. This attitude must be modified if surgery is to be given a chance. Once the disease of function has existed long enough, or is severe enough, to produce structural changes, whether in blood-vessels, bowel, or other tissues of the body, sympathectomy is of comparatively little value.

THE CHILDREN IN VIENNA

THE grave suffering, falling with special severity on the children, which is now being experienced in Vienna, has led the Save the Children Fund to address an earnest appeal to this country. The Fund has received from a special representative in Vienna a telegram, dated Feb. 26th, describing the grave problems of human distress in the city, owing to hundreds of families having lost their breadwinner. Many children, after the terrifying experience of bombardment, are without the necessities of life, and many homes have been destroyed. The Society of Friends is initiating auxiliary relief, and the Austrian Save the Children Fund is begging for money for "adoptions." "The fine help of the British Save the Children Fund after the War is remembered," says the telegram, "and the people look to Britain to subscribe generously to a fund which can be used where most needed." The position thus outlined is one with particular appeal for medical men, the after-effects of physically and morally damaged childhood being fundamentally serious, and our readers will be discharging a medical duty in bringing the appeal of this Fund to the notice of their immediate public. The address of the Fund, of which the president is Lord NOEL-BUXTON, now is 40, Gordon-square, London, W.C.1.

ANNOTATIONS

TREATMENT OF PERITONITIS

THERE is no surgical condition, perhaps, that calls for more careful judgment than peritonitis. No stereotyped line of treatment can be followed, since each case tends to be a law to itself, and the surgeon comes to rely chiefly on personal experience. Much experimental work, however, has been directed towards solving its problems, and working on a basis of the published results Dr. Edmund H. Mensing[1] arrives at a "pathologic physiology" of peritonitis and at a clearer conception of the requisites for success. In the first place he divides an attack of peritonitis into two stages. The early stage is that of generalised infection, in which the main danger to the patient is from absorption of toxins; the natural reaction of the peritoneum is the production of a bactericidal exudate, and the formation of adhesions which tend to circumscribe the infected area. By this time the later stage has been reached, and according to Mensing the danger of toxic absorption is at an end. The two main indications now are for "the re-establishment of intestinal motility and the correction of the circulatory disturbances," while great care must be taken not to interfere with the protective barrier set up by the activity of the peritoneum. Immediately one meets the first big test of judgment in the treatment of peritonitis—when to operate, and when not. Although Mensing prefers to recommend the Ochsner treatment as the safest procedure in cases of delayed appendicitis, he allows that appendicectomy would be the line of choice if "we all possessed the surgical skill that would enable one to remove the focus of infection without disturbing the defensive mechanism."

Inhibition of intestinal movements during the early absorptive stage of peritonitis is largely due to reflexes acting through the splanchnic nerves. That it is primarily protective is suggested by the experiments of Hotz, which Mensing quotes. Animals in which Hotz had produced excessive motility of the intestine, with splanchnic hyperæmia, by section of the splanchnic nerves, succumbed rapidly to peritonitis. Hence Mensing condemns all forms of stimulation of peristalsis—whether by hypertonic salt solution, by aperients, by enemata, or by injections of eserine or pituitrin—in the early stages of peritonitis. Administration of fluids by mouth he forbids at any stage of peritonitis, because of their stimulation of intestinal activity; but he nevertheless advises injection of hypertonic saline solution intravenously as soon as the primary stage is passed, with the express purpose of assisting peristalsis. The obvious comment is how is one to know when it is safe to stimulate peristalsis? Actually that is one of the main problems in treatment of these cases. Although Mensing does not allow any indication for the administration of pituitrin there are many surgeons who believe that, given at the onset of intestinal distension, pituitrin may save the patient from an intractable ileus, though its use in the later stages may be worse than useless.

The circulatory disturbances in peritonitis are twofold. There is a local vasodilatation of the intestinal vessels, and a decrease in the volume of circulating blood. A great quantity of fluid is also lost by secretion into the lumen of the intestine, and this loss may be further increased by vomiting. To correct this dehydration, and at the same time make good the important demineralisation with which it coincides, Mensing recommends continuous intravenous administration of a salt solution containing glucose and gum. He particularly objects to the administration of fluids by the rectum in cases of peritonitis, since they act as intestinal stimulants and also tend to upset the "intestinal gradient." Although morphia may be administered for pain, deep morphinisation is condemned because of its depressing effect on respiration, and consequently on oxidation. By diminishing the reflex action of air-swallowing, one of the important causes of abdominal distension may be combated by morphia, but as Mensing regards the action of morphia on the intestine as stimulant of tone and of peristalsis, he thinks it should not be pressed during the initial stage when the aim of treatment is to provide physiological rest.

[1] Amer. Jour. Surg., December, 1933, p. 478.

OVULATION AND THE "SAFE PERIOD"

NINE practitioners out of ten, if asked the most likely time for conception, would reply: "just after the menstrual period." This answer, none the less, is based rather on tradition than on fact. Indeed it now appears that it is the day or two after menstruation, as well as the week preceding it, that should really be regarded as the "safe period," in so far as any period deserves this phoboprogenitive name. It is now widely accepted that in women with a 28-day cycle, ovulation occurs on or about the 14th day, the first day of menstrual bleeding being reckoned as the first day of the cycle. Mr. Wilfred Shaw,[1] who not long ago described his studies of ovaries removed or examined at operations, believes that ovulation probably does not vary more than a day or two from the 14th day of the cycle, and his examination of corpora lutea at other stages of the cycle confirms this view. Dr. Emil Novak[2] states that ovulation occurs between the 8th or 9th and the 18th or 20th day of the cycle of 28 days, but oftenest about the 12th or 14th. The life of the ovum, after leaving the follicle, is probably, he says, not more than a day or two, so that conception can only take place about the time of ovulation. As to the viability of the spermatozoa, Novak quotes the views of Knaus and Ogino that these lose their power to fertilise the ovum within two or three days of their arrival in the genital canal, though they may retain their motility longer. If this is true, fertilisation can occur only during a period consisting of the ovulation phase plus three preceding days (to allow for the survival of spermatozoa) plus one or two subsequent days (to allow for the survival of the ovum). Novak places the optimum time for conception between the 10th and 18th days of the 28-day cycle, and especially from the 12th to the 14th day. For those desirous of avoiding having children, he considers that the immediately postmenstrual period (up to the 8th day from the beginning of menstruation) and the immediately premenstrual period (after the 20th day) are reasonably, though not absolutely, "safe." This formula can be extended, by those who are good at arithmetic, to apply to women with irregular cycles. Thus Ogino puts the beginning of the conception period at 10 days plus or minus the difference in days between 28 and the minimal length of the cycle; while the end of the conception period is at 17 days plus or minus the difference between 28 and the maximal length of the

[1] Brit. Med. Jour., Jan. 6th, 1934, p. 7.
[2] Jour. Amer. Med. Assoc., Feb. 10th, 1934, p. 452.

cycle. To quote an answer given to a correspondent in the *Journal of the American Medical Association* (1933, ci., 1174):—

In a woman whose cycle fluctuates between 26 and 32 days, the beginning of the period of fertility would be 10+(26−28)=8 days after the onset of the flow, and the end would be 17+(32−28)=21 days. Consequently, conception would take place in the time between the 8th and 21st days after the onset of menstruation.

Safety is, of course, a relative term when dealing with a series of biological events, and some authorities dislike referring to a "safe period," on the ground of its uncertainty, while others believe that ovulation may be provoked by coitus, as it is in some animals, and that consequently no period can be called safe. Dr. Novak points out, however, that coital ovulation in human beings has never been demonstrated, and Mr. Shaw, from his study of gynæcological material, believes that if it does occur it must be exceptional.

THE FUGITIVE X RAY LUNG SHADOW

THE growing tendency to decry the value of the stethoscope and to rely more and more on X rays in the detection of morbid changes in the lungs reflects a very real advance in the radiological diagnosis of pulmonary disease; but unless we treat with some circumspection the new lamp we are asked to exchange for the old, it is liable to burn us. This is the lesson of an article communicated by Dr. René Jeanneret and Dr. F. Famé, of the Mont-Blanc Sanatorium at Leysin, to the December issue of the *Revue de la Tuberculose*. One of their patients was a nurse with a history of pleurisy with effusion on the right side four years earlier. An X ray examination when she began work was perfectly negative. She complained one morning of feeling very tired and slightly dyspnœic; her mouth temperature was 37·8° C. and some crepitant râles were audible under the right clavicle. The X rays showed a homogeneous shadow, extending from the hilus towards the clavicle. Repeated examinations of the very scanty sputum for tubercle bacilli were negative, but pneumococci were found in abundance. Simple broncho-pneumonia was suspected, and when another X ray examination was made three days later, the shadow was seen to be fading—an observation confirmed by a third X ray examination. A fourth examination a few days later was entirely negative. Details of another similar case are recorded, and it is pointed out that the differential diagnosis between tuberculous and non-tuberculous lesions of the lungs should be made not from a single X ray examination, which may be inadequate and even misleading, but from a *series* of X ray examinations at intervals of a few days. In addition to the simple broncho-pneumonic shadow, simulating that of a tuberculous infiltration, there may be a shadow due to temporary local atelectasis. The case is recorded of a student examined for military service. Routine radioscopic examination showed a definite shadow over the right lung. The young man was given exemption from active military service and advised to consult a specialist. He did this, and while the first X ray examination showed an extensive shadow over the lower two-thirds of the right lung, another such examination, repeated a little later, was completely negative. After a month's observation in a sanatorium, the young man was discharged with a clean bill of health. It would seem that a violent bout of coughing by a healthy person who has choked because "something has gone the wrong way" may be sufficient to induce a patch of atelectasis revealed by the X rays as a shadow. The moral of these tales of fugitive X ray shadows is that shadows must not always be taken seriously nor must their speedy disappearance always be attributed to appropriate therapy.

A CONGRESS IN MOSCOW

THE fourth international congress on rheumatism to be held under the auspices of the Ligue Internationale contre le Rhumatisme will take place in Moscow from May 3rd to 6th. In accordance with the usual custom three subjects will be considered: in pathology, the pathogenesis and clinical aspects of rheumatic fever; in therapeutics, the indications for hydrological and physical treatment in chronic rheumatism; and in social medicine, the rheumatism of transport workers, miners, and metal workers. Many members of the affiliated committees in several countries are presenting reports or papers to the discussions: among others (from America), Dr. A. Coburn; (Austria), Profs. G. Singer, W. Falta, and N. Jagic; (Belgium), Prof. I. Gunzburg, Drs. R. Wybauw and de Munter; (Czechoslovakia), Prof. E. Cmunt; (Denmark), Dr. A. Faber; (England), Drs. A. P. Cawadias, B. E. Schlesinger, W. H. Bradley, and W. S. C. Copeman; (France), Drs. M. P. Weil and A. Fischer; (Germany), Profs. F. Gudzent, E. Plate, Schottmüller, S. Gräff, and Fahr, and Dr. P. Köhler; (Hungary), Prof. Z. Dalmady; (Holland), Prof. W. A. Kuenen; (Italy), Profs. Frugoni, S. Pisani, and C. Gamma; and (Sweden), Dr. G. Kahlmeter. During the congress there will be an exhibit to illustrate recent progress in the study, treatment, and prevention of rheumatic diseases. Afterwards excursions will be taken to Leningrad and to the Caucasian spas and the health resorts on the Black Sea, including the Limans and the rest houses for industrial workers.

The Ligue took its origin in an international committee on rheumatism formed by the International Society of Medical Hydrology in 1925, and it began its independent existence in 1928. A number of national organisations to combat rheumatism have been formed, the latest committee to represent England in the Ligue being recently appointed by the Royal College of Physicians of London. The proceedings of the Ligue are published in the *Acta Rheumatologica*. In the current number the various proceedings of the American Society for the Control of Rheumatism are reported at length, as well as the latest activities of the Board of Pensions in Sweden. The previous international congresses have been held at Budapest, Liège, and Paris, the last of them being reported in our columns on Oct. 22nd, 1932. Members of the medical profession who are interested in rheumatism are invited to take part in the meetings at Moscow, and representatives of institutions, spas, and clinics for rheumatism are also invited. Intending participants should communicate as soon as possible with the secretariat of the bureau of the Ligue at Keizersgracht 489, Amsterdam.

PROSTATECTOMY WITH CLOSURE

IN describing five years' experience of prostatectomy with primary closure of the bladder, Mr. S. Harry Harris,[1] of Sydney, presents an analysis of 371 cases which fully justifies his optimistic attitude towards the operation that bears his name. In the series of 371 cases, there were 10 deaths, giving a mortality-rate of 2·7 per cent. The essential features of the operation are the immediate control of hæmorrhage

[1] Brit. Jour. Surg., January, 1934, p. 434.

by suture, the re-formation of the prostatic urethra, and the obliteration of the prostatic cavity, combined with immediate closure of the bladder and abdominal wound. Not only is Harris's mortality-rate low, but post-operative hæmorrhage and septic manifestations have given him very little trouble. He performs the open operation with obliteration of the prostatic cavity both in primary and in secondary prostatectomy cases, but he is careful to point out that the operation is one for the expert and not for the occasional prostatectomist.

Although a few English surgeons—notably Mr. Alexander Wells [2]—have reported favourable results with the Harris technique, there seems to be little enthusiasm about it in this country. Mr. Kenneth Walker in his recent book, "The Enlarged Prostate and Prostatic Obstruction," states that it is a move in the right direction, but does not mention any personal experience of it. It must be concluded, therefore, that English surgeons have not troubled to acquire the necessary technique or else that those who have attempted Harris's operation have been so unfortunate as to meet with early disasters and have therefore abandoned it without sufficient trial. It must of course be remembered that prostatectomy with primary closure of the bladder is quite a different problem from suprapubic lithotomy with primary closure; it is the danger of hæmorrhage and clot-retention incidental to prostatectomy that makes surgeons nervous of doing without suprapubic drainage. If by accurate suturing, complete hæmostasis can be assured, primary closure of the bladder must obviously have great advantages over drainage. It was these advantages, as expressed by Sir John Thomson-Walker, that led Mr. Morton Whitby to propose the modified form of drainage which he described in our columns on Jan. 13th last. The value of papers such as Mr. Harris's present contribution to the *British Journal of Surgery* is that they seem to show that what has been done successfully by one expert can be done by another. Despite improvements in the handling of prostatic obstruction, it must be confessed that the ordinary operation of suprapubic prostatectomy leaves much to be desired.

THE PHARMACOLOGICAL LABORATORIES

AT the beginning of their eighth year the laboratories of the Pharmaceutical Society of Great Britain were recognised as a place where students might carry out research work in preparation for higher degrees, and during the year, as shown in a report just issued, workers from home and abroad availed themselves fully of this privilege. At the same time Dr. J. H. Burn, director of the laboratories, was given a chair in the University of London, and Miss Katharine Coward, D.Sc., head of the nutrition department, a readership in biochemistry. The report of the nutrition department is a brief record of work leading up to the setting of standards for various vitamins, the final success being a method for estimating the antineuritic vitamin. In the pharmacological department some work has been done on the effect of general anæsthetics on the tissues. The weakening of the heart by ether has been shown to be greater in degree than is commonly supposed; it is only fully revealed when vasoconstrictor impulses are cut off by paralysing the sympathetic ganglia with nicotine. Further work has been done suggesting that the size of the impulse passing down a sympathetic nerve depends upon the amount of adrenaline in circulation, whence arises the possibility of improving asthma by increasing the amount of circulating adrenaline. Work has also been done on a method of estimating parathyroid hormone by means of the rise in the excretion of urinary calcium following injection of parathyroid extract. Examination of four samples of digitalin, using both frog and guinea-pig methods, has shown an enormous variation of potency, from 55 to 250 units per gramme. Prof. Burn suggests that digitalis should be adjusted by admixture with lactose to bring its potency to 80 units per gramme, when one grain of the standardised preparation would contain the maximum dose for single administration. Work has also been done on mice to determine the ratio of anæsthetic and toxic doses for the derivatives of barbituric acid. It was found that the ratio of narcotic to toxic dose was 0·49 for paraldehyde, 0·48 for nembutal, 0·40 for pernocton, and 0·38 for avertin. Though the differences in the ratios are not regarded as significant it is curious that paraldehyde was found to be, if anything, the most dangerous of the four.

[2] THE LANCET, 1932, ii., 1268.

CENTENARY OF LIVERPOOL MEDICAL SCHOOL

THE centenary of the Liverpool Medical School is to be celebrated in a few days. The exact date at which the school came into existence has been fixed at some time in 1834, although there are records of the regular training of ships' surgeons in the city nearly 50 years earlier. However in 1834 the medical school was definitely founded, although for the first 10 years apparently students went to London, Edinburgh, or some other medical centre for a final year's training. University College, Liverpool, was founded by Royal Charter in 1881 and three years later was admitted into Victoria University, Manchester. The medical school then became a faculty of the University, and in the ensuing years developed with a rapidity which is common knowledge, the number of distinguished practitioners receiving part or all of their education at the school being very large. In 1903 came the establishment by Royal Charter of the University of Liverpool, a direct development of the old University College, and the scientific position of the medical faculty of the University proceeded apace. Four general and five special hospitals became available for clinics, an aggregate of no less than 1530 beds being thus ensured for clinical purposes, while the trade of the Port of Liverpool made the University a seat for special investigation into tropical diseases. The Students' Debating Society was formed 60 years ago and to-day is in a flourishing state of activity. A ball in celebration of the centenary will be held on March 14th under the auspices of the Society, when Lord Horder will be the guest of honour, and the students of the school are publishing a welcome to the function of all who are or have been interested in the progress of the school. The details of the celebration functions and tickets for the ball may be obtained from Miss M. F. Procter, the hon. secretary, the Medical Students' Debating Society, University of Liverpool.

A PLASTIC SURGERY CENTRE

THE account which we are able to give on another page of the use of Queen Mary's Hospital at Sidcup as a poor man's country club recalls the fact well known to most of our readers that the hospital buildings were put up during the war of 1914–18 to accommodate plastic surgical cases under the care of Sir Harold Gillies. Gunshot injuries, it is true, provided the most urgent need for plastic surgery, but the accidents of industry and of common life leave a number of similar deformities, and it is not as well known as it should be that there is at the Hammersmith Hospital, under the direction of the

London County Council, a plastic surgery centre to which Sir Harold Gillies is still chief surgeon. In a recent L.C.C. report [1] an account of a year's working of this centre is given by Sir Thomas Carey Evans, medical superintendent of the hospital. Although the majority of cases are received from London they come also from many distant parts of the country, and are likely increasingly to do so as the work of the centre becomes more widely known. In the year under review 192 operations were performed on 121 patients, the condition for which treatment was undertaken being in order of frequency: deformities of the nose, cleft lip or palate, scars, burns, loss of lips. Other occasions are deformities of eye or ear, birthmarks, contractures of limbs. The work requires careful organisation and much patience, the nursing is difficult, and many of the cases make poor operative risks. As a number of them must have more than one operation smooth anæsthesia becomes of great importance; for the most part the sequence of gas-oxygen and ether is given by the intratracheal method, nembutal being increasingly used as a pre-anæsthetic medication. A museum of records in plaster and wax casts is being made as well as a collection of photographs taken at all stages. "Every effort," Sir Thomas says, "is made to make all records strictly uniform so that 'before' and 'after' photographs are comparable in regard to position, distance, illumination, and exposure." It is interesting to note, however, that in the four photographs in the report illustrating the reconstruction of a nose, the same artifice is used to enhance the result as is familiar to those who have studied the "before" and "after" pictures of Alpine cures. The "before" picture is given on a black background showing up the pallor, the "after" picture on a white background showing up the healthy tint of the skin.

BRITISH DOCTORS IN INDIA

No announcement has yet been made on whether the new constitution of India will involve any change in the organisation of the Indian Medical Service, but the Secretary of State has expressed the opinion that it may be necessary in the future, as in the past, to use I.M.S. officers, not only for military purposes but also to meet the reasonable requirements of civilian Government servants. At the present time a certain number of I.M.S. officers are employed on civil duties in the provinces and elsewhere; they remain military officers, and serve to some extent to provide a reserve of medical officers for the Army. In a communication to the Medico-Legal Society on Feb. 22nd, Sir Lancelot Sanderson explained that the Indian Medical Service was primarily maintained for the needs of the Indian Army, the British troops being under the care of officers of the R.A.M.C.; but from personal experience he could testify to the inestimable value of the civil work of these officers, especially in charge of hospitals, of which the staff is chiefly Indian. Officers of the I.M.S., with the assistance of Indian medical men, also administer the Pasteur Institute at Shillong, and the School of Tropical Medicine in Calcutta.

The future of the British administration of India, he believed, must depend almost entirely upon the provision of an adequate British medical service, for a European official will not willingly take his wife and children to his place of service unless he knows that a British doctor is within reach. British families in India are largely dependent upon officers of the I.M.S. because, except in large towns where there is a considerable European population, a British doctor cannot make a living unless he is receiving a salary from the Government. He will not have an appreciable number of Indians who, for the most part, will call him in only on a matter of life and death. India is full of small settlements where the only British population consists of a few officials with their wives and families and one or two railwaymen or planters.

The leaders of the medical profession should therefore, according to Sir Lancelot, study the proceedings of the Joint Committee on India with great care in so far as they affect the medical organisation of the country, not only in the interest of the profession but in those of all their fellow countrymen and women who live in India.

USES AND SOURCES OF SEX HORMONES

In a discussion reported in our last issue Dr. C. Kaufmann of Berlin repeated his claim to have produced true menstruation, in a woman who had had double oöphorectomy, by injecting œstrin and corpus luteum hormone. Loeser [1] states that he has achieved the same object in three cases of primary amenorrhœa, using a technique very similar to Kaufmann's. The three women, who were aged 25, 30, and 38, and had never menstruated, were each given 300,000 mouse units of œstrin over 19 days. From the 22nd–26th days 50 rabbit units of corpus luteum hormone were injected, and on the 28th day menstruation began. Curetting on the second or third day of menstruation showed that a normal premenstrual endometrium had been produced. The treatment resulted not only in menstruation, but also, it is stated, in an intensification of the "feminine attributes" of the patients, both mental and physical.

Such observations show how close we are coming to a rational approach to disorders of ovarian function, but it has to be admitted that the cost of the materials used in these cases prevents their general application in practice. The objection of high cost applies particularly to progestin, the corpus luteum hormone, which is at present prepared only from the corpus luteum and with much difficulty. It is to be hoped that means will be found for obtaining, synthetically or otherwise, a cheap and copious supply of this hormone, and it is encouraging to hear that it has now been isolated in substantial quantities from the placenta of pregnant cows.[2] "The output of hormone," it is stated, "is still rather low," but it is not impossible that further investigations may bear useful fruit. Almost simultaneously Zondek [3] announces the discovery of a new source of œstrin. Having been the first to observe that pregnant mares excrete very large amounts of this substance, he has now found it in the urine of stallions. Such urine, he says, contains 10,000–400,000 mouse units of œstrin per litre, the average being 170,000 units—an amount nearly twice as great as the output of the pregnant mare. Allowing a urinary excretion of 10 litres per day, this means that the stallion excretes some 60 g. of œstrogenic hormone in the year. Colts and geldings excrete very little, about 0·2–0·5 per cent. that of the stallion, which suggests that the mature testis is the site of its elaboration, and in fact Zondek was able to recover 23,100 mouse units from a single pair of testes. This makes the stallion testis the richest known tissue source of œstrin. The hormone was found to a lesser extent in the urine and testes of the male of two species of zebra and two species of donkey, but ruminants had a negligible output. Male hormone,

[1] London County Council. Annual Report, 1932. Vol. IV. (Part III.), Medical Supplement to the Report on the Hospital Services. London: P. S. King and Son. Pp. 172. 5s.

[1] Loeser, A.: Jour. Obstet. and Gyn. Brit. Emp., Feb. 1934, p. 86. [2] Adler, A. A., de Fremery, P., and Tausk, M.: Nature, Feb. 24th, 1934, p. 293. [3] Zondek, B.: Ibid., Feb. 10th, p. 209.

gonadotropic substances, and corpus luteum hormone are not excreted by the stallion. That a male mammal should elaborate the œstrus-producing hormone in large quantities is very curious, but in view of what is known about the close chemical relationship between œstrin and the male hormones, Zondek's observations are not likely to lead to any greater confusion than already exists. He is certainly to be congratulated on yet another remarkable contribution to the study of sex hormones.

It will be noted that both Loeser and Zondek perpetuate the bad system by which the activity of œstrin is stated in terms of a species unit. Loeser makes no reference to the strength of his "mouse units" of œstrin, nor to the particular type of œstrin used, so that his information about the dosage is far from being as helpful as it might be. It is highly desirable that all such papers should give the œstrin dosage in terms of the internationally accepted unit. Where pure crystalline ketohydroxy-œstrin is used, it is enough to state the amounts given in mg. per day, for this can readily be converted into international units, the International Unit being the œstrus-producing activity contained in 0·0001 mg. of the standard crystalline ketohydroxy-œstrin preparation. Where other forms of the œstrogenic substances are used, the activity should be expressed in International Units after comparison of activity on rats or mice with that of the standard preparation, of which samples can be obtained. Where this is not practicable, it would be of great assistance if the nature and amounts of the œstrin used were stated, since the comparative activity of the more common derivatives is rapidly becoming known.

INQUESTS AND THE PRESS

THE Home Secretary was asked last week in the House of Commons if he would announce the result of his inquiry into the secret inquest held at Ton Pentre on Dec. 29th last. He replied that he had seen references to the inquest in the newspapers, including a statement by the coroner that he did not direct the exclusion of representatives of the press; the conduct of the inquest being a matter for the coroner, no Home Office inquiry was called for. A further question whether legislation would be introduced to ensure that inquests should be held in the presence of the press was answered in the negative. There is adequate judicial authority for the principle that the coroner has a discretion as to the amount of publicity he allows at an inquest. There is no absolute right for the press to have notice of inquests and to be given accommodation. The courts have held that there are occasions when an inquest is properly conducted in secret "for the sake of decency or for respect due to the feelings of the family of the deceased." The Departmental Committee on Coroners, in the report which eventually led to the framing of the Coroners (Amendment) Act of 1926, expressly said that no sufficient case had been made out for taking away the coroner's discretion.

The demand for publicity is in some respects a modern development. It is over a hundred years since the decision in Garnett *v.* Ferrand established the coroner's right to exclude members of the public (vide THE LANCET, May 20th, 1933, p. 1089). There are more daily newspapers now than then, and more people able to read them. Do we perhaps exaggerate the virtue of the "open court"? A recent writer on constitutional law, discussing the attributes and merits of judicial tribunals, finds something illogical in the English satisfaction with courts to which, in theory at any rate, the public has admittance. "Open court," he suggests, conveys to the man in the street the idea that, if they had the time and were so minded, they could walk in and take a seat and see for themselves that everything was fair and above-board. This train of thought fosters the impression that what is open must be fair and what is secret must be unjust. Yet, observes the writer, a judge disposed to be corrupt could attain his nefarious purpose without closing his court; the true safeguard is the confidence reposed in the integrity of judicial character. The moral seems to be that we must choose good coroners and trust them, even if they do not always hold their inquests in the Albert Hall with every entrance open.

DISSECTING ANEURYSM OF THE AORTA

IN a report to the Medical Research Council,[1] Prof. T. Shennan analyses 300 cases of dissecting aneurysm of the aorta, including 17 cases examined by himself. In this condition blood penetrates the inner coat of the vessel and extends through and along the middle coat, sometimes for great distances, occasionally to penetrate the intima again and regain the lumen, sometimes to rupture the outer coat and leak into neighbouring tissue spaces. Rarely healing occurs as a result of thrombosis and organisation in the sac. Primary degenerative changes in the media are considered the most important factors leading to dissecting aneurysms; these changes are found to be seldom syphilitic or atheromatous in origin, and a wide variety of toxins are held to be the agents which bring about the degeneration. In Shennan's cases a hypertrophied left ventricle was always found, suggesting, in the absence of other adequate causes, that hypertension had been present. This would certainly have a direct mechanical action tending to rupture a weakened area of vessel. The first part of the aorta is the commonest site of rupture, and for this there is an anatomical and mechanical basis. More or less stenosis of the aortic isthmus (coarctation) is not uncommonly observed, a congenital defect which throws an added strain on the proximal aorta. The lesion predominates in the male sex in the proportion of two to one, and persons of any age from 11 upwards may be affected, though the incidence is greater in the fifth and later decades. The clinical picture is striking but not distinctive, and the diagnosis has seldom been made during life. The onset is sudden and most often with severe pain in the thorax, but sometimes the pain is in the abdomen, so that an acute abdominal accident may be simulated and the patient operated upon; signs of shock and dyspnœa are usually present. The similarity to the picture of coronary occlusion will be noted. There may be symptoms suggesting a focal lesion of the brain, and in some such cases macroscopic changes to account for them have been lacking at autopsy. Dr. Shennan's monograph is an excellent study of a condition which though comparatively rare is of great interest, and it should be read by all workers in the cardiovascular field.

UNDER the organisation of the British Medical Association (Metropolitan Counties Branch) a meeting of the medical staffs of the London teaching hospitals will be held on Thursday, March 22nd, at 5 P.M., to consider the problem of London's hospital development. The meeting will take place at the B.M.A. House, Tavistock-square, W.C.1. Lord Horder will preside and the discussion will be opened by Dr. J. S. Fairbairn, Sir Crisp English, Mr. Zachary Cope, and Dr. Geoffrey Evans.

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[1] Special Rep. Ser. No. 193. London: H.M. Stationery Office. 1934. Pp. 160. 2s. 6d.

THE PREVENTIVE ASPECTS OF MEDICINE

A Series of Lectures in progress during the Winter Session at King's College Hospital Medical School

XVII.—PREVENTION OF OCCUPATIONAL DISEASES

WHILE it may be that a few physicians in the past have directed attention to illness and disease consequent upon certain occupations, I think it is true to say that until quite recent years the effect of industrial employment on the health of workers has not received any very great or concerted attention. It is not true, however, as is often thought, that the study of illness and disease produced by an occupation is a subject of more or less recent origin, and in this connexion it is proper to recall briefly some salient facts in the history of industrial medicine.

Last year was of special historic importance to those interested in industrial medicine, as being the tercentenary of the birth of Ramazzini in Italy and the centenary of the appointment of factory inspectors in this country. Ramazzini has bequeathed to us a treatise, "The Diseases of Craftsmen," which is full of truth in regard to the ills from which these craftsmen suffered. In 1831 Dr. Thackrah of Leeds made a contribution to the same subject entitled "The Effects of the Principal Arts, Trades and Professions." Dr. Thackrah not only had a knowledge of the diseases, but he also had views as to the prevention of diseases produced in industry, for, as regards the removal of dust, he says: "Let channels about a foot in breadth be made in the floors, each with one end opening out into the room and to the outside of the building; over the former let a light broad wheel attached to the machinery be made to revolve rapidly." "If the plan succeeds," he says, "it would avail for removing the dust of all manufactures which affect the lungs by mechanical irritation." The names of more recent pioneers in the study of occupational diseases, such as Arlidge, Oliver, and Legge, are no doubt well known to you.

The factory inspectors in this country were appointed in 1833 to administer the provisions of the Factory and Workshop Act at that time, and their successors have continued to administer the succeeding Acts. It was not until 1898 that the importance of the medical aspect of the work of a factory inspector was appreciated and resulted in the appointment of a medical inspector of factories.

There is now—if I may venture to say so—a swing of the pendulum in the direction of a tendency to ascribe to occupation all those ills which flesh is heir to and which cannot be otherwise readily accounted for.

It is clear that before any attempt can be made to prevent occupational disease, it is essential to recognise, by a process of "differential diagnosis" (if I may be allowed the expression), a disease which is consequent upon occupation from that which is common to the general population. It is by no means easy to do; but it is the basis of any preventive measures. It would be idle to suggest that preventive measures could be taken against typhoid fever, if the diagnosis of this disease depended only upon the patient's statement that he had eaten oysters or drunk water from a polluted river; yet I have known not a few cases where symptoms of abdominal pain and constipation, occurring in a painter, have been ascribed to lead poisoning, while inquiry has shown that the painter has never, in fact, been in contact with lead paint. On the other hand, I am aware of workers in lead processes who have had the vermiform appendix removed without benefit to either their colic or their constipation.

Most general practitioners count among their patients a very large proportion of industrial workers, and have thus great opportunity for studying disease among such workers. They should keep in mind the value of recording carefully the occupational history of all patients who come before them, if the knowledge of industrial disease is to progress. That the patient's description of his occupation is often misleading has been stressed by Dr. W. J. O'Donovan, who quotes the case of severe dermatitis of the feet in a boy who called himself a "tea-boy," further inquiry eliciting the fact that his real occupation was carrying the tea to cement workers, and that in the course of his work his feet became covered with cement dust. A man describing himself as a "fitter" may be a fitter in all branches of industry—engineering, chemical, lead or textile, for example.

The cause of epithelioma of the scrotum among mule-spinners was elicited in 1922 by Southam and Wilson (the latter having drawn attention to it some years earlier), who, by scrutinising the occupational history of all scrotal cancers admitted to the Manchester Royal Infirmary, came to the conclusion that the incidence of this disease among cotton mule-spinners justified them in concluding that the occupation of a cotton mule-spinner was an essential factor in causation. The recognition of this disease as prima facie of industrial origin and the subsequent animal experiments have proved conclusively the carcinogenicity in varying degrees of the various types of mineral oil used in cotton mule-spinning. The following figures show how the recognition of this disease brought to light a number of cases due to this cause, and was the first step in the prevention of them.

TABLE I.—*Mule-spinners' Cancer due to Mineral Oil*

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1923	15	1	1929	54	24
1924	79	17	1930	82	21
1925	78	35	1931	60	19
1926	88	20	1932	57	22
1927	101	31	1933	39	23
1928	101	36			

Recently you may have read of a series of deaths occurring at a works in the Midlands.

Briefly the history is this: working on an experimental plant were a number of men, five of whom died of hepatitis and hæmorrhagic nephritis within a few weeks. The first two of the men were attended by separate practitioners, and the deaths were recorded as due to natural causes. The next two came under an observer who became suspicious of the coincidence of these two men employed on the same process and suffering from the same condition. A further case of the same character under the care of a colleague indicated to the two doctors that the condition might well be caused by the work upon which these men were employed. Later investigation clearly showed this to be the case.

These are, to the best of my knowledge, the first known cases from this cause—the absorption of di-ethylene dioxide—and it may well be that some of you in future will lead us to a knowledge of other causes of diseases of occupational origin.

Industrial Disease

What really do we mean when we speak of an industrial or occupational disease? In my opinion such a disease is one the cause of which is directly

attributable to the industry or occupation up which the subject is engaged. There are certain points, perhaps, to which I can direct your attention in this connexion. Every practitioner is familiar with the vague indefinite symptoms complained of by a patient, such as headache, tiredness, loss of appetite. Work in premises without adequate ventilation may produce such symptoms, but equally also can they arise from late hours, improper diet, or enjoyment in an ill-ventilated place of amusement. Such symptoms occurring in one individual among a group of workers is of little significance, but if the whole group is similarly affected the symptoms become important and are indicative of conditions of employment that require improvement. Or, take again a case of bronchitis or asthma in one individual engaged in a particular occupation; this does not entitle one to regard asthma and bronchitis as necessarily due to the occupation or to be of occupational origin. On the other hand, it becomes, to say the least of it, suggestive, as in the case of cotton card-room workers in the cotton industry, if it is found that a large proportion of such workers are similarly affected, as was found by Mr. Bradford Hill, D.Sc., in his inquiry into the incidence of sickness among card-room workers.

So far I have briefly considered illnesses common to the general population that may have an industrial origin and in which measures of prevention are called for. The next group is in some ways more easily considered. These are diseases due to absorption of a toxic agent either through the respiratory tract, through the skin, or last and, I think, least, by the alimentary tract. In order to effect measures of prevention it is essential that information should be available where such cases of poisoning or disease arise. In much the same way that notifiable diseases under the Public Health Act are controlled by notification, so by notification of industrial poisoning or disease can these be controlled in industry—with this

TABLE II.—*Reported Cases of Industrial Disease or Poisoning*

Disease or poisoning.	1900.		1910.		1920.		1930.		1933.	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Lead poisoning ..	1058	38	505	38	289	44	265	32	168	19
Phosphorus poisoning	3	—	—	—	—	—	—	—	—	—
Mercurial poisoning ..	9	—	10	1	5	—	3	—	1	—
Arsenical poisoning ..	22	3	7	—	3	—	1	—	1	—
Carbon bisulphide poisoning	—	—	—	—	—	—	—	—	—	—
Aniline poisoning ..	—	—	—	—	—	—	24	—	12	—
Chronic benzene poisoning	—	—	—	—	—	—	—	—	2	—
Toxic jaundice ..	—	—	—	—	6	3	—	—	2	—
Anthrax	37	7	51	9	48	11	43	6	21	2
Epitheliomatous ulceration due to pitch, tar, paraffin, and mineral oil	—	—	—	—	45	1	194	36	143	40
Chronic ulceration ..	—	—	—	—	126	—	95	—	73	—

C. = cases; D. = deaths.

distinction, that industrial diseases are not infectious or contagious and do not affect the general population. One case notified may, however, result in efficient measures being taken which will prevent the occurrence of further cases in the same industry.

The first step, therefore, in the prevention of this class of industrial disease is notification by the medical practitioner, if he believes this to have been contracted in a factory or workshop. May I add that the notification of certain diseases is compulsory upon medical practitioners and has to be made to the Chief Inspector of Factories, Home Office, Whitehall. I feel bound to do so because a colleague of mine recently had occasion to visit a large provincial hospital where the house physician frankly confessed his ignorance of the requirement of notification and, to add insult to injury, said he had never heard of the Factory Department.

The diseases which are notifiable, if occurring in a factory or workshop, and the number of cases notified for a number of years are as shown in Table II.

As these poisonings or diseases are more or less rare the medical student has unfortunately little opportunity of studying them. As will be seen, throughout England, Scotland, and Wales during 1933 only 168 cases of lead poisoning were reported.

Then there are those illnesses due to the inhalation of gases or fume such as carbon monoxide, hydrogen sulphide, trichlorethylene, and benzene, which are sudden in their effects and are classed as "accidents." Such accidents have to be reported by the employer to the factory inspectors. In addition, there is a very large group of industrial or occupational diseases which, while not notifiable, are the subject of compensation under the Workmen's Compensation Act. They include the notifiable diseases and 26 other diseases which satisfy the following three cardinal principles laid down by the committee which, in 1906, considered any additional diseases which should be compensated under the Workmen's Compensation Act, 1906:

(1) Is it outside the category of accidents and diseases already covered by the Act?

(2) Does it incapacitate from work for a period of more than one week (altered to three days by the Act of 1923), which is the minimum period for which compensation is payable under the Act?

(3) Is it so specific to the employment that the causation of the disease or injury by the employment can be established in individual cases?

There is a further group caused by the action of certain dusts on the lungs—the pneumoconioses. We are now, I think, in a position to say that there are two well-established pulmonary fibroses arising in industry—namely, silicosis and asbestosis. A few months ago I should have said, with certainty, that the first, namely, silicosis, was due entirely to the inhalation of dust containing free silica; and the second due to the inhalation of asbestos dust. More recently, however, Mr. W. R. Jones, D.Sc., geologist to the Royal College of Science, has suggested and produced evidence to show that in many cases of silicosis the compound "sericite" (hydrated silicate of aluminium and potassium) is also present in the dust, and is the primary factor.

Principles of Prevention

Having briefly outlined the groups of diseases of occupational origin and emphasised the importance of correct diagnosis before assuming that they are of such origin, the prevention of these diseases consequently follows. It is inevitable that industry, if carried on under conditions inimical to health, will produce complaints similar to those produced in ordinary life where the conditions are of a like character. The Factory Act of 1901 requires, among other matters, that every factory or workshop shall be kept clean, free from effluvia, provided with sufficient means of ventilation, and kept at a reasonable temperature. It does not, however, contain any provisions as regards lighting.

It would not be an exaggeration to say that if domestic conditions were always of the standard

required by law for a factory or workshop, the health of the general population would be improved. It is not suggested that conditions existing in every factory or workshop throughout the country are by any means perfect, but it may be said that in the majority a good standard is attained.

The late war stimulated the recognition of the importance of this aspect of prevention of ill-health in industrial employment. Labour was limited, and time lost by illness became a very serious matter. While a number of employers had, it is true, before the war realised that an unhealthy worker was not an economical asset, this conception was not general. During the war it was realised that hygienic surroundings, good ventilation, lighting, and facilities for obtaining nourishing food at a reasonable cost, opportunities for rest, and recreation were not only good for the worker but good for the employer. The benefit derived from these during the war did, and has continued to stimulate the provision of such facilities for workers to enjoy a healthy life. In these examples of good conditions of employment lies the general principle of the prevention of ill-health of a character similar to that occurring in the general population.

Another aspect of the prevention of such diseases lies, firstly, in the medical examination of applicants for employment, and the medical supervision of the work and workers. While medical examination of entrants into industry, required by law and carried out by certifying surgeons, is very limited and only applies to young persons between the ages of 14 and 16, it has undoubtedly been the forerunner of much more extensive voluntary medical examination, now frequently practised. An increasing number of employers are realising the advantage of a medical service in the factory, whether part or full time.

From these conditions of ill-health I pass on to those diseases which are indubitably of industrial origin. The mode of entrance into the body, of the toxic agent, has already been referred to, and the prevention of these diseases lies in the following directions. The simplest is the prohibition of the use of the toxic substance. Such a drastic step has only been taken in one instance, that is to say, the prohibition of the use of yellow phosphorus in the manufacture of lucifer matches. No cases of phosphorus poisoning have been notified since the year 1919.

Prohibition must depend upon an absolutely competent substance being found to replace the noxious one. Consequently, total prohibition can only be exercised to a very limited extent, but the use of a toxic substance can be so restricted by certain requirements that the use of a substitute entirely non-toxic or far less toxic is encouraged. For example, lead poisoning in the Potteries was, until a few years ago, a serious hazard in this industry. Regulations for this industry, which came into force in 1913, imposed conditions which invited the use of a non-toxic product—i.e., leadless glaze or a lead glaze of low solubility. Lead poisoning in this industry has, during the past few years, greatly diminished. In 1913 there were 63 cases, in 1933 11 cases.

The conditions which are thus imposed by regulations are made under the Factory and Workshop Act by the Secretary of State. These regulations are directed to prevent the absorption of a toxic substance into the body, and regulate the conditions of the use of such substances; thus, by effective exhaust ventilation the toxic dust or fume is required to be removed at, or as nearly as possible at the point of origin.

Such exhaust ventilation is required for removal of toxic dust or fume, such as lead dust in the manufacture of pottery, in the manufacture of electric accumulators and of white lead, of dust from the manipulation of silica and asbestos, and fume of carbon bisulphide and benzine in india-rubber works. In some cases, however, efficient wetting or damping of the dust is sufficient to allay the risk of the dust being inhaled. In this connexion a most important change has been made in recent years in the manufacture of white lead for paint, by which the dusty process of drying of the white lead is eliminated. In the wet state the white lead is pulped with oil, the water being thereby removed and all dust suppressed.

Absorption through the skin, such as occurs particularly from contact with aniline, can only be prevented by appropriate protective clothing, and the use of prompt measures taken to prevent absorption if the skin becomes wetted with the chemical. It is perhaps hardly necessary to mention that lead poisoning is I believe never due to absorption through the skin of metallic lead or the lead salts.

Of some interest are a few recent cases which have occurred from the splashing of nicotine, which in one case proved nearly fatal. Only prompt measures taken to remove the nicotine from the skin saved the worker's life.

The alimentary tract is, I think, the least important from the point of view of industrial poisoning, although a proportion of the dust inhaled must eventually enter the system through this channel. It was at one time thought that eating food with hands contaminated with lead was a serious source of lead poisoning. I have little reason to think that this is so. However, it is not unimportant that before food is taken where poisonous materials are handled, the hands should be washed. The Factory Act requires suitable washing accommodation where lead, arsenic, or any other poisonous substances are used.

An additional measure of protection applied in many industries is the periodic medical examination of the workers exposed to risk. This may be at weekly, fortnightly, monthly, or quarterly intervals, and carried out by the certifying surgeon or appointed surgeon approved by the chief inspector. These examinations are chiefly concerned with work in lead processes, the use of carbon bisulphide, benzene and other fume processes in india-rubber works, and chromic acid in chromium plating.

In this connexion, perhaps, I may refer to the relative value of punctate basophilia or stippled red cells in the diagnosis of lead poisoning.

A stain of alkaline methylene-blue is considered to be better than that of Leishman in the examination of blood for this purpose. The finding of a few punctate red cells in the blood of a lead worker does not justify a diagnosis of lead poisoning; if found in numbers, such as 2000–3000 per million, they may constitute a warning of severe lead absorption; but the great value of blood examinations among this class of workers is to show the relative hazard in a particular branch of the industry and the efficiency of the preventive measures. Further, the presence of lead in the excretions is not necessarily proof that an individual is suffering from lead poisoning, nor is the presence of lead in the organs after death conclusive, even though the man was on lead work, that lead was the cause of death. Prof. Kehoe of Cincinnati has found 0·02–0·08 and even as much as 0·42 mg. of lead per litre in the urine of persons who have not been exposed to lead at all.

Such are the main principles of preventive measures for this class of industrial disease. Among the list of notifiable diseases, however, there are some which are primarily localised, as in the case of epitheliomatous

ulceration and anthrax. I have already referred to the industrial causation of epitheliomatous ulceration, and active investigations are proceeding to find oils of low carcinogenicity to replace those of higher potency, and in this connexion I may refer to the work done by C. C. Twort in Manchester. There must be for some considerable time a number of workers who have been exposed to oil of high potency and in which the "lag" period (a period occurring between leaving a causal industry and the onset of the disease) has not expired. A case came before me only a few days ago where exposure to mineral oil ceased some 48 years previously. For these it would seem that the only preventive measures must be directed to the detection, by periodic medical examination of the workers, of the early conditions such as papilloma or a keratotic condition of the skin. The treatment of choice of these cases is undoubtedly the application of radon seeds.

Anthrax in this country is largely a disease of importation, and in industry occurs in the handling of wool, hides, skin, and hair derived from infected animals.

The disinfection of wool and hair coming from countries where anthrax is endemic among animals before being handled in industrial processes is a method of prevention and one which has only been adopted in this country. A disinfection station, the Government Wool Disinfecting Station in Liverpool, was established in 1920, and by Order in Council all goat hair produced in or exported from or through India, and all wool and animal hair produced in or exported from or through Egypt, has to be disinfected at this station.

The effect of this disinfection by a method devised by Mr. G. Duckering, a factory inspector, now the director of the station, has been to eliminate infection from these classes of wool and hair.

Upon the coöperation of the workers a great deal of the value of the medical examinations depends. I am a great believer in informing the worker of the precautions necessary for him to observe, and to attain this end cautionary placards are displayed. In the case of anthrax, not only has the worker to be warned but it has been thought advisable to issue a caution to medical practitioners! Upon the early diagnosis of anthrax depends the value of Sclavo's serum. Anthrax is not a common disease, and it is not surprising that in its early stages it may be overlooked. To assist practitioners and to ensure the prompt treatment of anthrax—so essential if a fatal result is not to supervene—an individual card has been devised for workers employed in industries exposing them to risk of anthrax. Such individual cards, if presented to the practitioner, suggest tactfully to him the possibility of anthrax infection and the need for a more extensive examination.

TABLE III.—*Dermatitis—Principal Occupations*

Occupations.	1928.	1929.	1930.	1931.	1932.
Dyers and calico printers ..	50	54	104	82	104
Engineers	108	114	102	90	125
Labourers	31	31	74	56	57
Metal platers and polishers ..	47	53	66	44	64
Bakers and confectioners ..	58	50	58	56	52
French polishers	45	40	50	42	45
Painters	46	86	40	29	74
Leather workers and tanners ..	8	13	38	19	22
Chemical workers	37	58	31	35	40
Rubber workers	29	19	31	25	25
Sugar confectioners	26	37	30	30	38
Metal workers	16	27	28	21	31
Textile workers	18	22	20	25	29
Oil refiners	1	7	19	10	5
Printers	9	12	18	16	8
Sugar refiners	15	9	13	12	18
Pottery workers	7	8	13	5	18
Flour workers	3	12	9	3	9
Biscuit makers	4	12	8	20	30
Total cases receiving compensation under Workmen's Compensation Act	1367	1665	1802	1679	1940

Chrome ulceration of the skin and of the nasal septum is another condition which, while requiring medical supervision, also requires the coöperation of the workers.

Among the group of diseases subject to compensation, apart from nystagmus and certain other diseases of miners, dermatitis due to dust or liquids stands out pre-eminently high (Table III.). In the year 1932 there were 1567 cases compensated. I have said it more than once that, in my view, almost anything used in industry will, in certain individuals, produce a dermatitis, and I still have reason to hold this view. Protection of the skin of the hands and arms by means of suitable gloves or gauntlets, wherever practicable, is of course the easiest and simplest solution; but in certain industries such protection is not practicable, and care of the skin, such as the provision of suitable ointment, if the material handled is of the nature of a fat extractor, and careful cleansing of the hands, without using materials for this purpose which are themselves irritating, are the essential measures in the prevention of this condition, distressing to the patient and a heavy drain on industry. The serious problem is not the primary disability, which may be of short duration in the absence of the irritant, but the risk of recurrence.

You will no doubt have noted that I have referred to the removal of dust or fume by mechanical means, that is to say, by exhaust ventilation, and have given examples how their removal can be effected. There are, I regret to say, a certain number of processes to which this form of dust removal cannot be applied. In such cases the wearing of a respirator would appear to be the only possible solution.

Respirators vary from a piece of lint or cotton-wool held in place over the mouth and nose by a wire frame, up to a much more complicated apparatus which comprises a face-piece with a canister containing absorbent material. Except for the very coarsest type of dust, which would never in any case reach the lung tissue, and so damage it, lint and wool afford little or no protection. They are worse than useless when used as a protection against gas or fume, for which a canister respirator specially designed for types of gases or fume are required. Research has been going on for some considerable time with regard to an efficient dust respirator, and it is hoped that within a few months one which will filter particles in the dimension of 0·5 μ, and which will therefore afford some real measure of protection will be available.

There is great objection to the wearing of a respirator on the part of the worker, and it is only by careful supervision that these can be made of value.

A Central Industrial Clinic

In conclusion, I would refer to a statement that I made earlier on, namely, that the student of medicine has little opportunity of studying diseases of occupation, even those well recognised, such as lead poisoning. I am going to make a suggestion—perhaps a bold one—that there should be a centre or centres in the great City of London to which cases recognised or suspected to be suffering from a disease due to occupation could be sent. On the continent there are established industrial clinics and it seems to me that we in this country are a little behind the times in not having some centre where such diseases can be studied, not only from the clinical aspect but from

the point of view of occupation. On my part and on behalf of my colleagues I can assure you we should be only too glad to give any assistance we could in correlating working conditions with clinical findings. Moreover, the examination of patients suspected of an industrial disease, undertaken by the specialists attached to a great hospital would, I am convinced, increase our knowledge of such disease many times.

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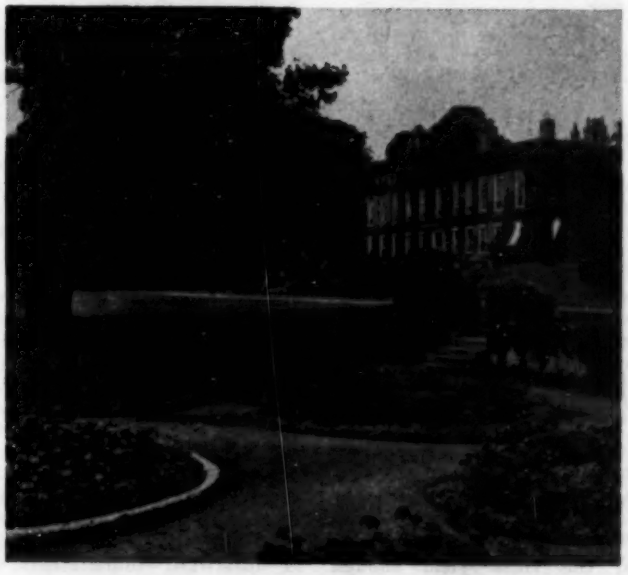
H.M. Senior Medical Inspector of Factories.

SPECIAL ARTICLES

QUEEN MARY'S HOSPITAL, SIDCUP
A POOR MAN'S COUNTRY CLUB

ILLNESS takes us out of ourselves, not in any pleasant sense. We are snatched from our ordinary pursuits to cope with a new enterprise—that of getting well. Often when the time comes to begin work again we wonder what we found absorbing in the repellent occupation to which we are committed for life. We creep about for weeks, resentfully aware that every day is a victory; no one offers us medals, however, and no one ever will, because this is an irritating martyrdom, especially to those who have been doing our work in our absence. Sound convalescence should send us romping back to work full of brilliant suggestions and unquenchable spirits, so that our colleagues learn to welcome our attacks of influenza, and congratulate each other when our appendixes have to come out.



Frognal House where medical officers and matron live.

The poorer patient as a rule has no proper convalescent period; he goes straight from a hospital ward to his own home, which seldom provides ideal surroundings, and back to work as soon as his panel doctor gives permission. If he is too ill to be sent home he may linger on in hospital, packed tidily away in his box of bricks and mortar usually in the heart of a city, and blocking a bed which may be needed urgently for a patient more acutely ill. This problem is perennial in all hospitals, voluntary and public assistance alike. At Queen Mary's Hospital, Sidcup, the London County Council are making a special effort to provide the right sort of convalescence for men who need it, and the success of the experiment owes much to the humanity of the plan on which it is conducted.

REASONABLE GROUPING

Patients are sent down in ambulance loads of any number up to 15 as soon as they are well enough to stand the journey. After an influenza epidemic they may arrive there at the rate of 50 a day. If they have recent operation wounds which need to be dressed it does not matter; there are fully trained nurses to receive them, make them comfortable, and do their dressings daily until they can get about again. If they are cancer patients undergoing a course of deep X ray therapy they need not spend tedious weeks in hospital, or go home to squalid conditions between each dose; the ambulance takes them up to town every week for treatment. Most of the patients, however, are convalescent surgical cases, patients with gastric or duodenal lesions on a diet, tired old men, chronic heart or lung cases, or patients who have just recovered from some acute illness.

They are received by the medical superintendent, Dr. Clifford Ellingworth, who examines them and writes a history of each case. He also decides to which ward the patient shall be sent; he makes his decision on other grounds than the convenience of the hospital. Old men with coughs are not sent into a ward where they will keep awake patients who would otherwise sleep soundly: all coughing patients share that misfortune in the same ward. Nor is a young boy recovering from appendicectomy sent to a ward full of elderly cancer patients; the young, ranging from about 16 to 26, share a ward. Patients with gastric and duodenal lesions are grouped together and can indulge in alimentary discussions to their hearts' content. There are wards for surgical cases which require dressing, a ward for cancer patients, a heart ward where the patients can be given graded exercises, a ward for incontinent, deformed, and paralysed patients, a ward for patients with fibrotic lungs and coughs, and a ward for old men. In addition, an attempt is made to classify patients according to their tastes and interests; two clerks will be put next to each other, for example, or two men from the same part of the country.

The admission room is a clearing station; one by one the newcomers go in to be examined, and those who are waiting their turn sit and look at illustrated papers. Dr. Ellingworth notes the ward for which the patient is destined at the top of the history sheet; his secretary immediately writes a card and places it in a slot in a great frame facing his desk. This frame is a large square of wood, divided up into rectangles by wooden ridges; each rectangle represents a bed, each column of rectangles a ward. There are beds for about 500 patients in the hospital. When a card is placed in position, it occupies a rectangle, so that one sees what is in essence a diagram of the

whole hospital, with all the patients in their beds. It is significant, moreover, that each card bears, not a number, but the man's name—George Black or Henry Johnson or William Thorpe. Each patient is a real person, whose likes and dislikes must be taken into consideration if he is going to derive full benefit from his convalescence.

THE GROUNDS

The hospital buildings are all army huts, which were put up during the war to accommodate plastic surgical cases under the care of Sir Harold Gillies. Later they were taken over by the Ministry of Pensions, and only became the property of the London County Council in 1930. The hutments stand in the grounds of Frognal House, which has been rebuilt nearly as many times as Cold Comfort Farm, and now turns a noble Jacobean front to the world and hides a Norman archway (leading to the old cellars) somewhere in its heart. Between the house and the wards is a superb stretch of lawn, where white fantails pace, and an oaktree, ripe with the experience of 300 years, spreads it boughs across a diameter of 120 ft. and leans lightly on its crutches. The place is a bird sanctuary, and many of the patients show a knowledge of birds and a keen interest in their doings. Besides lawns, the grounds enclose clumps of rhododendrons, a fair-sized wood, and a field where the patients can play cricket and football. The estate covers 92 acres in all. A camellia house yields exotic bouquets for the wards, and in the walled garden enough vegetables are grown to supply the hospital all summer; nectarines, gathered in season, at the rate of 50 a day, are distributed to patients who are not well enough to leave their beds, and the vines yield enough grapes for everybody.

Hutments arranged in a horseshoe.

GAMES AND AMUSEMENTS

The wards are arranged in a horseshoe. They are connected by covered ways which have no steps anywhere, so that a wheelchair can go from one end of the hospital to the other without difficulty. Each ward has a balcony, facing either east to catch the morning sun, or west to catch the afternoon sun; the balconies are fitted with windscreens and are in constant use. One old man has refused to have his bed brought in, and has been sleeping out of doors on the balcony all winter.

Rules are few; within reason patients are at liberty to choose and refuse as the mood takes them. Since the hospital became a convalescent home there have been no complaints from the residents, and the police are agreeably astonished at the peace which broods over the place.

This is due, no doubt, partly to the absence of restrictions, and partly to the fact that there is always something going on at the hospital. Three entertainments a week are given from October to March. In one of the huts, which is large enough to seat all the patients, there is a concert platform; excellent scenery has been painted by a Scottish patient, who has done a particularly happy picture of his native moorland, as well as a number of expensive-looking interiors. Dramatic societies come down to give their services, and concerts, variety entertainments, and films also form part of the winter programme. A canteen, where patients can get a cup of tea or coffee for a penny, is open all day, and cigarettes, sweets, and cakes are on sale. In the canteen and two neighbouring rooms are several small tables at which the patients can sit and play draughts or dominoes, or entertain their friends on Sunday afternoons. Often the whole family comes and makes a day of it, and the crowded canteen resembles a popular restaurant. The canteen profits are very small, but they are sufficient to pay the expenses of visiting dramatic societies and to buy new books for the library. There are now nearly 2000 books in the library, some of which have been given, but many bought.

Dartboards are to be seen, not only in the canteen but in the dayrooms, where patients can sit in cold weather and smoke, read, or play games. These rooms are situated in the ward blocks, and are furnished chiefly with easy chairs. The old men have a dayroom to themselves, in which the chairs are specially comfortable. There is a wireless set in one room, and loud-speakers are springing up in various parts of the buildings. Additional entertainment is provided by a deck tennis-court and three billiard tables, one of which is reserved for beginners. Two silver cups are played for in interward tournaments, one being given for billiards and the other for darts.

REST AND GOOD FOOD

A rule which would be considered impracticable in most hospitals decrees that any patient may go and lie down upon his bed at any moment he chooses. All he is expected to do is to turn back the white coverlet before lying down. Rest is the most important part of convalescence, but this is a truth which is sometimes ignored in the interests of hospital routine; at Queen Mary's Hospital routine takes a very humble place beside the comfort of the patients.

The catering is on generous lines. The convalescents have a breakfast of eggs and tomatoes, bacon or sausages; a three-course dinner at midday beginning with broth and including roast meat or stew, two vegetables, and pudding or pie; a solid tea, with bread and butter (no margarine is used here) and jam, and salad from the garden, in season; and a meat supper in the evening. In addition, patients can have

fresh lemon drinks whenever they like. Most of the patients are accustomed to making tea the last meal in the day, and find here a real opportunity to build themselves up with extra food. The diet sheet is arranged so that no one can prophesy what there will be for breakfast or dinner to-morrow. A great point is made of serving food hot; bones are removed from joints before cooking, and the roast meat is sliced like lightning on the bacon cutter, and instantly served on to hot plates. The bones are used to make broth. Kitchen equipment includes an instrument of British make which slices vegetables, beats eggs, grates breadcrumbs and suet, grinds coffee, and mixes dough. Meat is kept in motor-cooled refrigerators, and washing up for 500 people is expedited by a mechanical contrivance.

There is a special dining-room for the old men where they can begin their meals a little early, and masticate, at their leisure, freshly cooked mincemeat and such other dishes as suit their tender gums. Patients with gastric and duodenal troubles also have a separate dining-room where they are spared the unsettling sight of neighbours devouring roast beef.

The patients are as free as the limitation of hospital rules can make them. The main gates are shut at 10 o'clock, but until then patients can saunter where they please over a countryside rich in pleasant walks. Anyone can ask for a late pass who wants one, and privileges are rarely abused. There is a barber's shop which opens at stated times and is well patronised. Letters are collected from a box on the premises, so that the necessity for visits to the town is not great.

On Sundays there is a service in a little chapel, built from an army hut like the wards. Frognal House itself is the residence of the medical officers and the matron; the nurses occupy hutments at its back. Sick nurses from London County Council hospitals can also stay here during convalescence and entertain themselves with croquet and tennis as their health improves. It is delightful to see the humane principle extended not only to patients but nurses in this remarkable hospital. Their rooms, instead of being bleak and trim like most nurses' quarters, are the homes of people who like living in them and, apart from the uniformity of their gay blue-patterned covers, are as individual as their owners.

A ward with balcony adjoining.

APPLIED PSYCHOLOGY.

The therapeutic side of convalescence is not neglected. A dental clinic is held every Friday, and there is a massage department with radiant heat, diathermy, and ultra-violet light equipment; a fully trained masseur is in attendance to supervise remedial exercises and give massage to patients who need it. The average stay of patients is too short to make any vocational training useful or possible, but there is a carpenter's shop in which some take an interest.

There is opportunity, too, for a little practical psychotherapy as the following story illustrates. A young man, by profession a journalist, was admitted during the past year. Not being very successful in England, he had sailed to Canada, but had been less successful there. For months he had tramped over the country, "jumping trains" as the phrase goes, and living in the casual wards. Finally he got into trouble with the authorities and was deported. On admission to Queen Mary's Hospital he was morose, silent, down on his luck, and full of self-pity. No one could approach him. A short time later a boy of 19 was admitted, full of charming spirits, whose history was rather similar; he too had an extensive knowledge of Canadian casual wards, but they had not depressed him. The medical superintendent introduced the two and placed them in the same ward. Within a week the journalist had cheered up and was ready to talk with everybody. When the time came for them to leave they asked the medical superintendent to recommend some job which they could enter together. He suggested the R.A.M.C. Both were accepted and are doing well; the journalist, indeed, wrote such a good entrance paper that he was put into the non-commissioned officers' training class at once. They are a shining illustration of the principle set out at the beginning of this article, that we should return from a period of convalescence not merely as good as we were before, but rather better.

A dining-room for men requiring special diets.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

SURVEY OF SCOTTISH MEDICAL SERVICES

THE Departmental Committee appointed to review the health services of Scotland, with the Hon. Sir John C. Dove-Wilson as chairman, has been taking systematic evidence for some months now. They interpret their terms of reference in the widest sense. They have already had before them Prof. Crewe, on biological factors in health; Dr. R. Hutchison on nutrition; Dr. McKinlay, Dr. McKendrick, and Dr. Kermack, on vital statistics. They have also had some evidence on birth control from well-known social workers like Mrs. St. John Stocks, of Manchester. More recently they have entered into a systematic survey on sanitation. Dr. Clark (Glasgow), Dr. Ritchie (Dumfries), Dr. Guy (Edinburgh), Dr. Adam (Stirlingshire), and Dr. Bignold (Ayrshire) have appeared on behalf of the medical officers. The evidence on the medical and allied services, it is hoped, will be of the widest possible scope. Among other matters, it will deal with: (*a*) administration costs of existing services, including national health insurance; (*b*) suitability of these services to modern conditions; (*c*) whether there is failure to apply modern knowledge, especially of prevention; (*d*) administrative difficulties; (*e*) relation to private medical practice, voluntary hospitals, and other agencies, and the lines along which national health policy should be directed so as to secure the best results from all the agencies concerned with the health of the people.

JUVENILE COURTS

Mr. George Morton, K.C., Sheriff of Aberdeen, Kincardine, and Banff, at a meeting of the Scottish Justices' and Magistrates' Association, emphasised the necessity of juvenile courts being composed of people who had a knowledge of child psychology. It was not law, he said, that was needed in those courts, but good sense. In discussing the administration of the criminal system in Scotland, he stated that however preventive the administration might have been, it never had any reformative effects. Until recently no distinction has been made between the young offender and the hardened criminal either in the courts before which they were haled or in the sentences imposed. It had been decided that the best court for dealing with juvenile offenders would be one composed of justices of the peace specially selected because of their aptitude for dealing with young persons. Sheriff Morton, in reference to children with a mental "kink," insisted on the desirability of having them examined by an expert.

THE PSYCHOLOGY OF THE CRIMINAL

At the last meeting of the Royal Society of Edinburgh Dr. Robert A. Fleming, consulting physician to the Scottish Prisons, lectured on the Psychology of Crime and Criminals, with special reference to measures for reformation. He recognised as causes of delinquency, in the presence of mental defect, of sensational accounts of crime in newspapers and detective stories appearing as novels, plays, or films. He emphasised the need for extension of Borstal training, and of special care in the selection of probation officers where such guardianship is necessary, and referred to the desirability of grading Borstal inmates and to the position of untried prisoners, many of whom are specially open to reformative influences in the days preceding trial. Dr. Fleming was critical of Freud's doctrines, contending that "stirring up the cesspool of an individual's worst thoughts by the process of 'free association' requiring weeks, months, and sometimes years, could not be other than harmful to the subject and the psycho-analyst alike." Many psycho-analysts would certainly not accept this conclusion, but Dr. Fleming, although deprecating the technique as carried out by an increasing band of psycho-analysts in many countries, agreed that there was a kernel of truth in Freud's life-work. He hoped that a more satisfactory technique might be devised, particularly in the interests of investigation into the cause of criminal behaviour.

EARLY MENTAL TREATMENT

In his annual report on the Crichton Royal Institution Dr. C. C. Easterbrook states that, whereas 75 per cent. of the private patients admitted to the Crichton Royal in 1933 went of their own accord, barely 11 per cent. (9 out of 82) of the rate-aided admissions were voluntary. He draws the attention of the local authorities to the special importance of early treatment in mental disorders, and the special disadvantages of delay of treatment in rate-aided cases. A delay may mean the probability of certification and lessened prospect of recovery owing to postponement of the necessary treatment in hospital. It may also increase the risk of the disease becoming insurable and the patient becoming a permanent charge on the rates, apart from his economic loss to the community as a worker and wage-earner. For the voluntary patients the recovery-rate was 42·3 per cent., and in addition, 30 per cent. were improved. That is, 72·3 per cent. of the voluntaries left restored in health. With the certificated patients the recovery-rate was 37·3 and 12·7 per cent. improved. On the total admissions of the year, 62·8 per cent. of those discharged were more or less completely restored to their usual state of health.

THE EDINBURGH CORPORATION HOSPITALS

Dr. John Guy, the medical officer of health, in a report on the Edinburgh corporation general hospitals, suggests that the time is ripe for a careful survey with a view to a definite hospital policy. He has submitted proposals for consideration, the cost of which is estimated at £50,000. With regard to the whole hospital question generally, the Northern and Eastern hospitals are full, but there is usually an average of about 40–50 beds vacant in the Western General Hospital. The report refers to the teaching of students. Approximately 40 students per term may ultimately be in residence at the hospitals under a scheme which bids fair to be very successful. They will reside in hospital for terms of three months, and the accommodation will be divided between the three institutions. Among the other proposals are improved dietetic facilities, especially at the Northern and Eastern Hospitals, better lecture-room accommodation, and a mortuary in the pathological building. The possibility of a nurses' home is mooted.

MEDICAL EXAMINATION OF TEACHERS IN TRAINING

Recently, in Edinburgh particularly, there has been a great deal of discussion as to the time and the method of examining students in training at the Normal Training Colleges. The traditional method has been that the student is examined and certified at entrance to the college and again after he completes his course. It has long been maintained by the

members of the Edinburgh provincial committee that the physical fitness for training should be determined at the beginning. It is a peculiar hardship for a student to find that, after completing his course, he is disqualified on physical grounds. To this there is now added a further disability, namely, the education committee of the corporation of Edinburgh declines to be bound by the examination at the training colleges, and, when a man or woman applies for a teaching post, they may be rejected independently of the standard fixed by the provincial committee. This has somewhat irritated the Education Institute and a standard for the four Provincial Training Colleges is asked for. It appears, however, that the education authority is an independent body and, as regards these examinations, is not subject in any way to the Scottish Education Department. These severe examinations are, of course, made necessary by the conditions of superannuation, and both the local authority and the central departments have to protect themselves as far as possible against needless breakdowns. But it is anomalous that the examination exacted by the various provincial committees at the Normal Training Colleges should not be such as any local authority might properly accept when appointing teachers.

DUNDEE STUDENTS AND THE CHARITIES

The students of the four Scottish universities have shown great competence in the last few years in collecting money for the public charities, and Dundee seems, this year, to have excelled itself. Here the students gathered nearly £3000, which is a new record for a week's work. Most of the "stunts" centred round the new city square, and crowds gathered to witness two cycle races, a mock hanging, an alleged wedding, and a "soccer"-cum-"rugger"-cum-tennis-cum-boxing match that was fought out necessarily without strict adherence to any codes. The police, apparently, put their foot on a representation of a jewel robbery.

The Fairmilehead Cripple Hospital, recently opened and for a considerable time now in active occupation, will henceforward be called the Princess Margaret Rose Hospital.

IRELAND

(FROM OUR OWN CORRESPONDENT)

MILK AND PUBLIC HEALTH

In a broadcast talk on milk, delivered last week by Prof. Boyle, of the department of agriculture, University College, Cork, pleas were put forward for greater cleanliness in the handling of milk, for more extensive employment of pasteurisation, and for eradication of tuberculosis in cattle. His arguments on the last point were weakened, however, by his statement that only 1 cow in 400 yielded milk containing tubercle bacilli, and that the danger of contracting tuberculosis from milk was "comparatively slight." His views, of which the press report was by no means full, have roused criticism from Prof. J. W. Bigger, of the department of bacteriology, Trinity College, Dublin. Prof. Bigger questions the proportion of 1 in 400 given by Prof. Boyle, and suggests that it may be an inference from obviously faulty calculations contained in the Report of the Inter-Departmental Committee on the Milk Supply (1928). He goes on to point out that even if this estimate is correct, when the milk from a large number of cows is pooled and then distributed the danger to individual consumers is greatly increased. For example, in Manchester 14 per cent. of churn samples, in Aberdeen, Dundee, Edinburgh, and Glasgow 10 per cent., and in London 9·3 per cent. have been found in recent years to contain living tubercle bacilli. Of cows slaughtered in Dublin, 32 per cent. show evidence of tuberculosis. Prof. Bigger adds that in 1932 there were in the Irish Free State 818 deaths from non-pulmonary tuberculosis. Taking a very conservative estimate of 25 per cent. of these as being due to the bovine bacillus, over 200 deaths in that year were due to infection by milk. The margin of safety given by pasteurisation is so narrow that that process cannot be regarded as a safe alternative to eradication of tuberculosis. Prof. Bigger draws attention to the delay in bringing forward legislative measures for the protection of the milk-supply, measures which have been promised and foreshadowed by successive Ministers for Health any time during the past five years.

FEES FOR ADMINISTRATION OF ANÆSTHETICS

In 1926 the Minister for Local Government and Public Health sanctioned a scale of fees to be paid for administration of anæsthetics in district hospitals throughout the country. The standard fee was to be one guinea. Recently, without any notice to the consultation with representatives of the medical profession, the Minister has issued a circular to local authorities in which he suggests a different, and much lower scale, of fees. He suggests one guinea for administering the anæsthetic in case of "major operations," with reduced fees if more than one operation is performed at the same time. For "minor operations" he suggests half a guinea, and for operations for tonsils and adenoids a fee of 5*s*. The proposal has roused a good deal of feeling, and certainly will not be accepted by medical men.

POLAND

(FROM OUR OWN CORRESPONDENT)

SOCIAL INSURANCE

On Jan. 1st of this year a new Insurance Act came into force which set up a central authority through which in future the insurances of all workers—black-coated or black-handed—will be administered. Insurance is compulsory and the scheme includes benefits for maternity, death, accidents in the course of employment, sickness, and unemployment. What is new in the system is that insured patients must pay a small fee for each consultation and for each bottle of medicine, the object being to reduce the number of malingerers. Chronic conditions such as tuberculosis and venereal diseases, infectious diseases, and illness in children under three years of age will still be treated free.

POSITION OF MEDICAL MEN IN POLAND

The medical profession in Poland are finding things difficult, for the economic crisis has impoverished the people and this has of course affected most of the doctors. On the whole the profession is not overcrowded, but there are too many doctors in the towns and villages, and too few in the country districts, especially of the eastern province. A small proportion of doctors are employed by the State as panel doctors, or by big insurance companies, or by the hospitals. Almost all, however, give

gratuitous service to the hospitals and seek to make their livelihood in private practice. To make medical treatment possible for the poor, clinics have been set up, mostly in the big towns, which are supported by social or philanthropic organisations. In these clinics consultations cost nothing or practically nothing. Besides these institutions the doctors themselves have organised clinics for out-patients, where specialists may be consulted for a third or a quarter of their usual fee. Many doctors are finding it very hard to earn their living, for even people who are fairly well off attend these clinics, and only a small number prefer to consult a doctor privately and pay the usual fee.

A CONGRESS IN POLAND

The next international conference of the International Union against Tuberculosis will be held at Warsaw from Sept. 4th to the 6th. The three main subjects for discussion will be the biological variation of the tuberculosis virus; the medical and surgical forms of tuberculosis of the bones and joints and their treatment; and the utilisation of dispensaries for the treatment of tuberculous patients.

This will be an excellent opportunity to visit Poland, and English doctors may be sure of a hearty welcome.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE A.A.A.S. held its ninety-third annual meeting this year in Boston. The section of medicine is one of 15 sections, which meet coincidently. Thirty-four scientific societies held meetings in Boston in connexion with the meetings of the Association. The presidential address was given by Dr. J. J. Abel, of Johns Hopkins University, on Poisons and Disease. The president-elect is Prof. E. L. Thorndike, the well-known psychologist of Columbia University. A special award of $1000 was given for the eleventh time. The award is made for some noteworthy paper on the programme. The paper selected from among some 1500 competitors for this honour was that of Dr. R. L. Kahn, of Michigan University, author of the well-known precipitin test for syphilis, and was on the subject "Tissue reactions in immunity: the specific reacting capacities of different tissues of an immunised animal." Dr. Kahn described a method for measuring specific reacting capacities of different tissues, and has applied his method to skin, muscle, brain, and peritoneal tissue, as well as to blood plasma. The paper is to be published in *Science*.

The section on medical sciences followed a pre-arranged three-day programme. One session was devoted to appendicitis, another to pneumonia. The second day was divided between sociological aspects of medicine and a symposium on tuberculosis. Dr. Henry Chadwick, newly appointed commissioner of health for the State of Massachusetts, and pioneer in the study of the childhood type of tuberculosis, read a paper on the Incidence of Tuberculosis. Thereafter joint sessions were held with the American Pharmaceutical Association, the American College of Dentists, and on the following day with the American Society of Parasitologists. Many excellent papers were presented on the typhus-like diseases.

EFFECTIVENESS OF CONTRACEPTION

The Milbank Memorial Fund continues its studies on the effectiveness of birth control as it has been practised during recent years by American women. Dr. R. K. Stix and Mr. F. W. Notestein, of the Division of Population Problems, have completed a preliminary study of a group of married women who have attended a birth control clinic. They do not claim that this is a random sample of the population, but their data do give interesting and accurate measurements of the effectiveness with which birth control has been used by this group. Each of 714 women was interviewed in her home at some time after her visit to the clinic. The data obtained relate to her married life up to the time when she first visited the clinic. The median income of the group was $2300 in 1929, and had fallen to $1200 in 1932. Before visiting the clinic in 1931 as many as 95 per cent. of the women had made some attempt to control conception according to the knowledge available to them. Forty per cent. began to use some method immediately after marriage, another 40 per cent. before the beginning of the second pregnancy. The methods most frequently used were coitus interruptus (33 per cent.), condom (32 per cent.), and douche (23 per cent.).

The pregnancy rate is found to be seven times higher when no contraceptive method is used than when some method is being used. The rate at which women become pregnant with the first child is significantly higher after they have used contraceptives and interrupted that practice in order to become pregnant than is the rate for women who have never used contraceptives. The difference observed here is not large and may be explainable, so the authors suggest, by the loss of time incurred by women in the second group while they and their husbands are acquiring a technique of coitus. In the first group such an apprenticeship would have been already served when the "exposure to pregnancy" period begins. At least no evidence is found that the use of contraceptives ever results in sterility. Contraceptive practice is found to be more effective among nulliparous than among parous women.

MATERNAL MORTALITY

The study of maternal mortality made by the New York Academy of Medicine, with financial aid from the Commonwealth Fund, has already been noticed in your columns.[1] On this side it is attracting a great deal of attention, and bids fair to become a classic. The statistical bulletin of the Metropolitan Life Insurance Company for December, 1933, published with comments a table of maternal mortalities in certain selected countries from 1910 to 1932. The difficulty of comparing rates which arises from different methods used in the selection of the primary cause of death is discussed. It is believed that the figures used in this table are fairly comparable for the English-speaking countries and for the Netherlands. "The failure to reduce maternal mortality," says this bulletin, "not only in this country but throughout the world is incomprehensible, particularly since it has been demonstrated . . . that the mortality of women from causes connected with childbirth can be reduced materially, probably by at least two-thirds." The needless sacrifice is estimated at approximately 9000 lives in the United States for the year 1933.

[1] THE LANCET, Jan. 20th, p. 135.

CORRESPONDENCE

NEGATIVE GLAND REPORTS IN CARCINOMA

To the Editor of THE LANCET

SIR,—In a paper on X ray carcinoma which appeared in your issue of Jan. 20th I expressed a certain scepticism as to the value of a negative finding when excised lymphatic glands in the region of a carcinoma are submitted to a microscopic examination for the detection of cancer-cells in them. My scepticism implies no criticism of the pathologist, but the inherent difficulties of the examination are not sufficiently recognised either by laboratory workers or by clinicians. The question is one of high practical importance and I ask your permission to bring forward further evidence upon it.

In the *Annals of Surgery* for January, 1934, there appears a paper on epithelioma of the lip by Dr. Robert H. Kennedy of New York in which he remarks:

"In no other part of the body except the head and extremities does any surgeon consider that he is doing a proper operation for cancer, unless he removes the regional lymph-nodes. For a surgeon to perform a simple mastectomy in the presence of apparently early carcinoma of the breast would be considered by most men a rank injustice to the patient. If regional lymph-nodes after removal fail to show the presence of carcinoma it does not mean that an unnecessary operation has been performed. The pathologist simply has not found carcinoma in any of the sections which he examined. Naturally, he does not make serial sections of all the tissue sent him, but of nodes or regions which seem suspicious to him. Theoretically, at least, it is possible for one or a few metastatic cells to be present in a regional lymph-node and impracticable for the pathologist to find them."

It will be seen that Dr. Kennedy's conclusions about lip cancer are the same as mine about X ray cancer. Dealing with a common form of cancer he has been able to support these conclusions by striking statistical evidence. He records a series of 246 cases of lip cancer operated on at the Stuyvesant-square Hospital by various surgeons, and divides them into three classes.

(A) Lip-excision only, 50 cases, 13 well for varying periods up to ten years, i.e., 26 per cent.

(B) Lip-excision with neck-dissection also; no carcinoma found in lymph-nodes, 150 cases, 69 well for varying periods up to ten years, i.e. 46 per cent.

(C) Lip-excision with neck-dissection also; carcinoma found in lymph-glands, 46 cases, 11 well for varying periods up to ten years, i.e., 24 per cent.

If in class B all the negative pathological reports were correct, these cases enjoyed no advantage over the cases in class A where the primary growth was removed and the glands were not touched. Class B, in which the surgeon was led to remove the glands, were presumably rather more advanced than class A cases and likely therefore if the gland-dissection was valueless to give rather worse results. In point of actual fact only 26 per cent. of A cases remained free from recurrence, a result hardly better than in the advanced C cases where a gland-dissection was done and invasion of the glands was found. The removal of glands subsequently reported as uninfected nevertheless raised the percentage of non-recurrence from 26 to 46.

Further comment is needless. Although for cancer of the lip and mouth radium has now made excision of the primary growth unnecessary, excision of the glands is imperative, whether they are palpably enlarged or not, if the patient is a good operative risk. In oral cancer the policy of early gland removal which I urged in X ray carcinoma has definitely proved itself the right one.—I am, Sir, yours faithfully,

Harley-street, W., Feb. 23rd. W. SAMPSON HANDLEY.

THE BARBITURATES

To the Editor of THE LANCET

SIR,—To the detached spectator of what has come to be called the Battle of the Barbiturates it would appear that the opponents of these drugs are lacking in a sense of proportion. They contend, inter alia, (1) that the barbiturates are a ready and increasing means of suicide; (2) that their use gives rise to addiction. Well, Sir, even if they are right in these contentions, what of it? The gas-oven is a "ready and increasing means of suicide," but no one proposes that the sale of gas-ovens should be restricted to doctors; and as to addiction, everyone has known people who began by using alcohol regularly in small doses and ended by becoming addicted to it; but is that any reason why the rest of us should become total abstainers?—I am, Sir, yours faithfully,

Devonshire-place, W., Feb. 24th, ROBERT HUTCHISON.

To the Editor of THE LANCET

SIR,—The discussion on the barbiturates is performing a useful function in elucidating the facts in a somewhat obscured situation. It is now apparent that the evidence against the use of these drugs which was drawn from experiments upon animals is worthless and ought never to have been brought forward. Sir William Willcox admits that he has "ceased to use it as a warning."

The clinical evidence, now that it is being clearly reviewed, is seen also to be of a much more qualified and doubtful nature than at first appeared. Sir William Willcox's argument originally seemed to be that the repeated daily use of these drugs in therapeutic doses causes dangerous changes in the central nervous system and various alarming symptoms. In his paper to which he refers (Proceedings of the Royal Society of Medicine, 1927, xx.), he states: "The taking of large doses or continued full therapeutic doses must cause definite organic changes in the central nervous system," and maintains that they should not be given oftener than once or twice a week. Experienced clinicians, on the other hand, point out that they have been accustomed for years to prescribe these drugs for daily use in repeated therapeutic doses, not only without harmful results, but to the great benefit of the patients. The example given by Dr. Stoddart in your issue of Feb. 17th is a striking instance in point. It would appear, however, that Sir William has modified his views since 1927 as, in his letter to THE LANCET (Feb. 17th), he says that all he contends is "that the repeated daily use of the drugs over long periods is dangerous and harmful in some cases."

Apparently, however, this also will require to be further qualified, as, on consideration of the type of cases Sir William Willcox refers to, it is evident that he shows a remarkable disregard for the existence of psychological factors, and appears to look upon the development of symptoms such as confusion, automatism, and depression after the taking of a barbiturate as being entirely due to the action of the drug. One hesitates to suggest that he has been misled by the post hoc, propter hoc fallacy, but it is obvious that the sequence does not necessarily imply a causal relationship. Patients under treatment for insomnia by hypnotics display as well, as a rule, other symptoms of a psychological nature, and unless he can show that the psychological factors have been excluded there is no justification for considering subsequent developments such as suicide

as being due to the use of the drug. In regard, for example, to the popular actress referred to, there is certainly no proof that the confusion and automatism assumed to be present were caused by the sedative.

Sir William's attitude seems to be curiously inconsistent. He looks upon the barbiturates as efficient and certain hypnotics that have their place in therapeutics, and he fully admits their value in the treatment of mental disorders. Yet he will not prescribe them himself, merely because of the danger of possible abuse—surely an inadequate and unjustifiable reason. It is evident, in fact, that he has altogether too respectful an opinion of these drugs when he refers to them as efficient and certain hypnotics. Speaking as one who prescribes them with great regularity, I only wish they were.

I am, Sir, yours faithfully,

Wimpole-street, W., Feb. 24th. FREDERICK DILLON.

To the Editor of THE LANCET

SIR,—I had not intended to ask for further space in your correspondence columns so soon, but Sir James Purves-Stewart in his letter in your issue of the 24th shows that he has neither done me the honour of reading my paper carefully nor troubled to clarify his own thoughts on the matter.

He says that I denied the general proposition that the barbiturates in therapeutic doses are dangerous. I do. I based this on an examination of the literature up to 1932 which showed that in uncomplicated cases no deaths had occurred from therapeutic doses of the barbiturates up to that date. If that is not evidence that barbiturates in therapeutic doses are not dangerous to life I do not know what is. Against this Sir James adduces three cases (non-fatal) which he suggests I overlooked. On the contrary, I referred to the general question of such cases specifically under the heading of idiosyncrasy, and I had his and other cases in mind—for, although such cases are exceedingly uncommon, Sir James can claim neither priority nor uniqueness for his observations—when I said "Where repeated dosage is too heavy, or if the patient has an idiosyncrasy, the fact nearly always declares itself in the form of toxic signs which give ample warning; hence doubtless the rarity with which repeated dosage appears to have been fatal."

Secondly, as regards suicide, Sir James says that I denied that the barbiturates are a ready means of suicide. I did not, because it would be almost psychotic to do so. I also agree that they have been an increasing means of suicide during the past few weeks. Everyone knows why. But that "they are a ready means of suicide and as such influence the suicidal-rate of the population in an upward direction"—i.e., that they are a cause of suicide, not one jot or tittle of evidence has yet been produced. It is really fundamental in a discussion of this sort to be able to distinguish between a thing as a means of suicide and the same thing as a cause of it.

Sir James alleges furthermore that I denied that the barbiturates gave rise to addiction. Quoting again from my paper, I stated that "There are many considerations which make it unlikely that addiction, whether or not leading to an overdose, accidental or suicidal, is an outstanding danger with the barbiturates, although it can occur." If this is a denial words cease to have any meaning. On the other hand, I thought it was a very handsome admission seeing that I have never met a case of addiction myself and have met very few people who believe that they have either. Moreover, there are hardly any well-documented cases in the English literature, except that of Dr. Stolkind (THE LANCET, 1926, i., 391).

If the case for addiction is to be proved it is absolutely necessary that Sir James and others should produce full accounts of the cases which they describe as addiction, and I submit that these accounts should include, if possible, examination by a competent psychiatrist. It is surely important that we should deal in facts and not in asseverations.

I am, Sir, yours faithfully,

Wimpole-street, W., Feb. 24th. R. D. GILLESPIE.

To the Editor of THE LANCET

SIR,—In the issue of THE LANCET of Feb. 17th Dr. Gillespie, in his paper on the barbiturates, states that hitherto my tables of fatalities from these drugs have been the only ones available in English. I have published no tables, but in 1927 I wrote a paper on the history of the barbituric acid group of drugs (Proc. Roy. Soc. Med., 1927, xx., 1498). Appended to this paper, to which Dr. Gillespie refers, is a library index of authors and papers with annotations of the number of cases, separated into total and fatal to which each paper refers. It cannot be suggested that this index represents a table of statistics! Dr. Gillespie clearly recognises this in his acceptance of my number (400) of total cases of barbituric acid poisoning. (Reference is made to over 500 total cases in the index of authors and papers appended to my paper).

I am not disposed to quarrel with Dr. Gillespie as to the exact proportion of fatal to non-fatal cases of barbituric acid poisoning (he omits in his paper all reference to non-fatal cases), but a complete study of the literature on barbituric acid poisoning would show that the numbers of cases which I have included fall well below the total numbers of cases recorded.

Prof. Gunn's contribution to the Royal Society of Medicine discussion on Dec. 12th, 1933, shows that the number of cases of barbituric acid poisoning is rapidly increasing. He said, "We must take cognisance of the great increase in recent years of cases of accidental and suicidal poisoning with hypnotics, especially of the barbituric series. To quote from a recent set of statistics (which could be paralleled in most countries) there were admitted into the hospitals in Budapest, from 1909–14, 35 cases of veronal poisoning, in 1932 there were admitted into one hospital of that city 87 cases. Even that increase did not represent the increase in poisoning by this group, because luminal had appeared on the list. In 1923 there was in this hospital one case of luminal and 23 of veronal poisoning, in 1932 there were 80 of luminal and 87 of veronal poisoning."

In view of these figures it is obvious that the literature presents but a faint picture of the dangers of the uncontrolled use of the barbituric acid group of drugs, as but a small proportion of the cases of poisoning from these drugs is recorded.

I am, Sir, yours faithfully,

Welbeck-street, W., Feb. 26th. 1934. HELEN YOUNG.

To the Editor of THE LANCET

SIR,—One thing this controversy has certainly shown and that is the relative safety of these drugs when properly used. When it is considered how large must be the proportion of unstable persons for whom these drugs are prescribed it should be a matter of relief to everyone that the suicidal rate and the accidental overdose rate when added together only give two-thirds of 1 per cent. of the suicidal rate in the country in any one year. I wish that Sir

William Willcox had had a few years' experience in the treatment of persons with mind disturbances, for he then would appreciate what prescribing for these patients really entails. In saying this I am not referring to institutional treatment where protection from accidents is comparatively easy. Those of us whose work lies in the realm of nervous and mental disorder have to take great risks in the interest of our patients. We must use every known method which may assist in the re-establishing of their health, and to run away from dangers is neither helpful to them nor edifying for us. If the suicidal rate can be reduced it should be done, but there is a point which many do not seem to appreciate and that is, that in their laudable endeavour to reduce it they may by their method bring about an increase. We have witnessed during the last few weeks what suggestion can do. Now to prescribe a few cachets and mark the prescription "not to be repeated" will be met by the inquiry why this is done, and even if we evade the question the meaning of our action is clear, and many patients may go away with the knowledge that what has been prescribed is dangerous. Others will definitely say "Oh, you think I will commit suicide with them."

Loose prescribing should certainly be stopped, but with my knowledge of unstable minds I would far prefer to give my prescription with the warning I usually do, that is, that to increase the dose will not help the return to health nor assist in the ultimate re-establishing of sleep, rather than be compelled by a statutory obligation to suggest something which may be very harmful to my patient.

Further, in the case of an epileptic, to restrict his means of obtaining the drug he has been taking may result in his death from "status epilepticus." I have said and I again repeat that if there is proof of any serious misuse of these drugs let it be dealt with, but the evidence which has been adduced shows how infinitesimal this is when we consider the thousands of doses that are daily taken under medical direction and by means of which much suffering is relieved.

I am, Sir, yours faithfully,

MAURICE CRAIG.

East Preston, Sussex, Feb. 26th, 1934.

THE RELIABILITY OF THE HALOMETER

To the Editor of THE LANCET

SIR,—The annotation under this heading in THE LANCET for Dec. 30th, 1933 (p. 492) stated: "diffraction methods measure the size of the corpuscles in mass, expressing only average figures, the details of the distribution are not known and the variability of the values cannot be accurately estimated." Five years earlier I had described (Brit. Med. Jour., 1929, i., 635) a diffraction method which gives the average diameter of a million red cells, and also the quality and degree of anisocytosis. I agree that the primitive diffraction method which I described previous to this, and on which Eve's halometer and so many other apparatus which are being marketed now are based, cannot do this. They will probably not even give a correct average diameter with diseased blood.

Your annotation also mentions that good service would be done if comparative measurements were made by the microscopic and the diffraction method in cases of diseased blood. May I point out that this work has already been done by me (Jour. Path. and Bact., 1931, xxxiv., 771), with satisfactory results, both as regards average diameter and degree and quality of anisocytosis. I leave the question of the accuracy of microscopic measurements of red blood-cells to physicists, being fully confident that they will prefer properly applied diffraction methods. From the point of view of physical optics there really is no sound foundation for the current assumption that, if microscope measurements and diffraction measurements happen to disagree, the fault must lie with the diffraction method. As a matter of fact, in the case of red blood-cells, both methods must naturally give somewhat incorrect results, but the errors are unimportant for the purpose for which the methods are used, and the diffraction method has at least the advantage of being much quicker.

I am, Sir, yours faithfully,

Pretoria, Jan. 31st, 1934. ADRIANUS PIJPER.

ADENOID AND TONSIL OPERATIONS

To the Editor of THE LANCET

SIR,—I presume that this operation is frequently performed because a child suffering from a cold in the head gets into the habit of keeping his lips apart even when the cold has passed away. There would not be much temptation to operate if the rhinitis were treated and measures taken to ensure that the patient kept his lips closed. The treatment called diastolication devised by Dr. Gautier of Paris removes the temporary congestion of the inferior turbinals which causes obstruction to breathing and leads to stagnation of secretion in the floor of the nose. The habit of holding the lips apart can then be overcome by giving the child something to hold between them. The aluminium disc recommended by Mr. Sheldon Friel of Dublin ensures this. May I also point out that you cannot expect to cure obstruction in the nose due to longstanding and considerable bony deformity by any of these measures. Why then have so many of such patients been subjected to the removal of tonsils and adenoids?

I am, Sir, yours faithfully,

Highgate, N., Feb. 24th, 1934. A. R. FRIEL.

A QUESTION OF NEGLIGENCE

To the Editor of THE LANCET

SIR,—Dr. Molloy's almost judicial letter in THE LANCET of Feb. 17th on a "question of negligence" prompts one to inquire to what extent he is armed with the qualities of a judge. One wonders whether a letter received at Monte Carlo with regard to the actions of a medical practitioner in London can be regarded as more than hearsay. Dr. Molloy does not say whether he has taken the trouble to investigate the accuracy of facts communicated to him by a lay person and it will be interesting to hear from him, after he returns to London, whether he finds that his information requires any modification. He does not comment upon the hardly professional attitude of his friend's own doctor, who took over a colleague's case without apparently communicating with him, but this is a small point.

Doctors who live out of London are apparently fortunate in being in a position to treat their private and panel patients on an equal footing; but it is difficult to see why the West End practitioner does not, instead of fussing about the prestige of his profession, take a hand in a piece of national work which he evidently considers himself well able to criticise from an ethical point of view, and would therefore be able to carry out much better than the present panel practitioner . . . or wouldn't he?

I am, Sir, yours faithfully,

MARTIN O. RAVEN.

Broadstairs, Kent, Feb. 24th, 1934.

THE MEDICAL PRACTITIONER AT THE POLICE STATION

To the Editor of THE LANCET

SIR,—In the remarks in THE LANCET for Feb. 24th with regard to the recent judicial solicitude for persons charged with being under the influence of alcohol while in charge of mechanically propelled vehicles, no reference is made to the distinction between being "under the influence of drink" to such an extent that one is unfit to drive a car, and being "drunk" to such an extent that one is incapable of giving legal consent to examination. Sir E. Graham-Little, at a meeting of the Pedestrians' Association and the Cyclists' Touring Club, lately emphasised the distinction between "drunkenness" and the less easily recognised effects of a small dose of alcohol on driving, and, if this distinction is not yet recognised by the courts, it ought to be.

I am, Sir, yours faithfully,

J. E. J. PALSER, M.R.C.S., L.R.C.P.

Alexandra Park-road, London, N., Feb. 24th, 1934.

THE PREVENTION OF TUBERCULOSIS

To the Editor of THE LANCET

SIR,—The lecture on the Prevention of Tuberculosis, by Dr. Salusbury MacNalty (THE LANCET, Feb. 17th) seems to me to demand comment. Coming from such a source the article carries great weight of authority, and it is only on one aspect—certainly an important one—that I propose to offer some remarks. In so far as adult pulmonary tuberculosis in England is concerned, I submit that many reasons can be given to justify disagreement with the assumption that adult pulmonary tuberculosis is infectious as between adults. Within the compass of a letter it is impossible to give supporting authorities for all the arguments I propose to rely on, but much of the evidence on which comments are based is referred to in my paper published in "Tubercle" (1932) or, better still, in Fishberg's classic work on this disease.

I submit that—

(1) By the time adult life is reached tuberculinisation of a massed community is complete.

(2) Tuberculosis in the infant bears no resemblance to adult disease.

(3) Between the ages of 5 and 15 tuberculosis is an unimportant cause of mortality.

(4) While pulmonary tuberculosis is the great example of adult tuberculous disease, other organs—e.g., kidneys, skin, and genitalia—may be affected. If pulmonary tuberculosis is due to inhalation, how do these organs become infected?

(5) Adult pulmonary tuberculosis is a disease of individuals and is not a centre of infection, as are the infectious diseases.

(6) Under the closest possible human association—e.g., husband and wife—the healthy partner only becomes diseased in approximately the same percentage as occurs in the appropriate age-group. I refer to Wilson Fox, Fishberg, and E. Arnould who report on 53,069 couples.

(7) At any given moment only a fraction of actual cases is known. In 1928, 4593 cases died unnotified. To accuse and convict the known case of being the source of danger and to disregard altogether the more numerous unknown cases is illogical and indefensible.

(8) The absence of glandular enlargement in adult cases is, to me, clinching proof that the disease is of endogenous and not exogenous origin.

(9) Koch's phenomenon, which really only means that it is impossible to produce a disease which already exists.

(10) During the war in many places the pulmonary tuberculosis rate increased. Was this due to increased infection, or was it not the result of altered economic conditions, as is the present notable increase of disease among females in the 15 to 25 age-group?

(11) If pulmonary tuberculosis is due to inhalation, surely the resulting disease would follow pneumoconiosis lines and begin in the lower two-thirds of both lungs, and not only in the upper part of one lung.

The diminution of the total tuberculosis rate gives ground for satisfaction, but unless effort is based on indisputable fact much waste will ensue.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 24th, 1934. V. S. HODSON.

THE RELIEF OF RENAL ŒDEMA

To the Editor of THE LANCET

SIR,—The letter from Dr. Izod Bennett in your issue of February 24th illustrates very clearly the difficulty in assessing the value of therapeutic measures in the treatment of renal œdema.

The possibility of fatal secondary infection in a patient with gross œdema is a very real danger, which makes it incumbent on the physician to attempt its relief without delay. If the issue is successful both he and the patient are rightly gratified, but the result should not be accepted as proof of the efficacy of the measures employed. As I pointed out in the lecture quoted by Dr. Bennett the great majority of renal patients when put to bed in hospital spontaneously lose their œdema. For this reason I have felt it desirable to draw conclusions regarding the adequacy of various methods of treatment of œdema only from observations on patients in whom œdema has persisted after three weeks in bed in hospital. The use of so strict a standard reduces to very small dimensions the number of cases on which such observations can be made; and to even smaller dimensions the instances in which successful results are obtained with the various special methods of treatment.

It was not my intention to suggest that treatment of œdema was negligible or should be delayed. The importance of rest in bed with fluid restriction and salt restriction, combined with measures to improve the general health of the patient, were, I hoped, sufficiently emphasised in my lecture. My experience is with in-patient treatment in hospital; it does not suggest that patients who fail to respond to these measures are usually benefited by any of the many special measures often advocated. This does not mean that such special measures should not be employed. It is surely obvious that, in resistant cases, any and every measure should be attempted which is theoretically sound and without known deleterious effects.—I am, Sir, yours faithfully,

ARTHUR ELLIS.

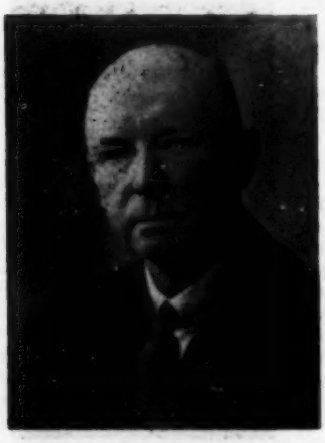
London Hospital, Feb. 26th, 1934.

GLASGOW ROYAL INFIRMARY.—On the ordinary income account there was last year a deficit of nearly £27,000; legacies and donations exceeded 31,000, of which £10,655 had to be utilised in payment for alterations and equipment, while the balance was applied to the deficit. The cost of in-patients was just under 7*s.* 6*d.* per day. The out-patients' and ophthalmic departments and the dispensary have all become so inadequate that the managers feel that they are asking too much of the medical staff. Lack of money has hitherto stood in the way of the necessary improvements.

OBITUARY

JOSEPH FAULKNER DOBSON, M.S. Lond., F.R.C.S. Eng.

BY the death on Feb. 19th of Mr. J. F. Dobson the profession has lost a brilliant surgeon and the staff of the Leeds Medical School a much loved colleague, at the early age of 59. He was of a numerous medical family; his father, Dr. Joseph Dobson, M.D. Lond., who died comparatively recently, having been one of the oldest and most respected practitioners of Leeds. The son received his medical education at the then Yorkshire College and the University of Leeds, and after qualification he held a series of post-graduate appointments at the Leeds General Infirmary, being appointed honorary assistant surgeon in 1905 and full surgeon in 1913. After 20 years' service he retired to the consulting staff last year. In his first years of practice he was associated with the late Sir Arthur Mayo Robson as his assistant, but rapidly developed a very extensive and successful practice of his own, mainly in abdominal surgery, though by no means restricted to it. In later years he devoted much attention to urology, and became an acknowledged authority in this branch of surgery. Indeed, it was a grief to him, and one shared by his colleagues, that he had not the opportunity of founding a special department of urology in the Leeds General Infirmary, owing to the lack of financial and other resources of that institution. In his earlier years he did much original research, especially in the anatomy of the lymphatic system, applying his knowledge to his clinical work in operations for malignant disease, particularly in regard to operations on the cæcum and colon. He was much interested in cancer research on its clinical side, and was a great stimulus to the work of younger men in this and, indeed, many other directions. He was twice Arris and Gale lecturer at the Royal College of Surgeons of England—namely, in 1907 and 1922. He was consulting surgeon to the Batley and District Hospital and to the Ilkley Coronation Hospital.



PROF. DOBSON

[Photograph by Brittain&Co.

At the outbreak of the war Dobson was administrator of the Second Northern General Hospital at Beckett's Park, Leeds, and laid the foundations for the very efficient work of what by the end of the war was one of the largest general war hospitals. After 18 months of this service, however, he had a serious and prolonged breakdown, but on his recovery he went to France to command the surgical division of the general hospital at St. Omer. The seeds were sown, however, of the recent illness which proved fatal to him at a comparatively early age.

As a surgeon Dobson fully maintained the highest traditions of Leeds surgery. As an operator he was cool, resourceful, reliable, and, by general accord, brilliant; though it is characteristic of him that he would have disclaimed that last word—indeed, would almost have resented it. As a diagnostician and a clinician generally his opinion was absolutely sound and reliable; his care for the welfare of his patients led him to disfavour both surgical "adventures" and "statistics." This by no means indicates that he lacked either intrepidity or progressiveness. To the time of his last illness there was no keener student of surgery, as his very numerous visits to the leading surgical schools, both in England and abroad, sufficiently testify. He had a flair for discriminating between the permanently valuable and the merely ephemeral in contemporary surgical practice and teaching, and in this respect it is hard to over-estimate his service to his own school. He was appointed professor of surgery in the University of Leeds in succession to Lord Moynihan, becoming Emeritus professor last year. As a teacher he was held in high esteem, not merely by the students, to whom he was always a sympathetic friend, but by that much more critical body, the younger surgeons of the school in which he worked. To them he was always a source of friendly stimulus and inspiration, and his junior colleagues in this way owe him a debt which will react to the benefit, not only of the surgical traditions and practice of Leeds, but to the wider circle of the general public.

But great and enduring as has been his influence in surgery, it is for his outstanding qualities as a man that "Joe" Dobson was both respected and loved. He was absolutely fearless and, in the best sense, no respecter of person; of strong opinions, and given to be forthright both in their expression and putting them into practice. What seemed right to him to do, that he did, and was not to be moved from his path by any personal consideration whatsoever. Neither money, approbation, nor any other influence could move him from his duty. It was this unswerving integrity, combined with the quality of vision, which has won for him such an admiration and friendship, and gives personal point to the great sense of professional loss which those felt who knew best the man and his work.

WILLIAM DARLEY-HARTLEY, M.D. Durh., M.R.C.P. Lond.

THE death is announced from Cape Town of Dr. Darley-Hartley, a prominent figure in the South African world both as doctor and journalist. He was born at Sheffield in 1854 and educated at Sheffield Grammar School, whence he proceeded for his medical studies to Guy's Hospital. He qualified as M.R.C.S. Eng. in 1878, and as L.R.C.P. Edin. in the following year, and while holding one of the house appointments at Guy's was offered a medico-military appointment in connexion with the native insurrection in Zululand. He had a narrow escape of being present at the disaster of Isandhlwana, for he was left behind suffering from heat-stroke while his regiment went on and was decimated, his deputy being one of the victims. After a year of military service he settled in East London, S. Africa, and was in possession of a lucrative practice when in 1885 he accepted the appointment of district surgeon at Cathcart and surgeon-captain in the Frontier Mounted Rifles. These posts he held for four years, when he relinquished them to return to East London, where his civilian work was again interrupted by the Bechuanaland war. In 1898 he came to England and obtained

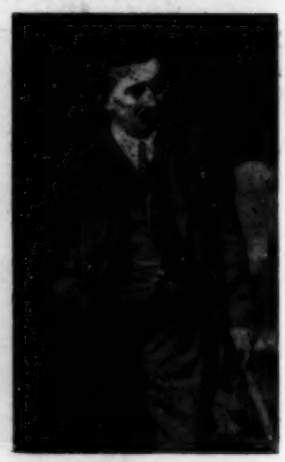
the diploma of M.R.C.P. Lond. and the degree of M.D. Durh., and on his return to S. Africa settled down as a consulting physician in Cape Town. But these were stormy political times, and Darley-Hartley became deeply involved in the controversies that preceded the Boer war. Throughout the struggle he served as a civil surgeon until peace was signed, and gained medals and clasps.

A year later Darley-Hartley started the *South African Medical Record*, and his connexion with this paper, now represented by the *South African Medical Journal*, is an interesting story in journalism. When he acquired the derelict newspaper which he afterwards transformed into the *Record*, he had for many years been a correspondent to both lay and medical papers in England, so that in addition to his knowledge of medical practice he had unusual experience of newspaper methods. He brought broad views to his task, encouraged criticism, and was unsparing in dealing it out, and in particular took pains to get lay opinions upon matters in which the medical profession was concerned. He dealt with the subjects frankly and impartially, and officialism soon jibbed at his reports. The Medical Council of South Africa held its sittings in public, and the well-informed editor had no difficulty in showing, either to this body or to the local branch of the British Medical Association, that he was infringing no ethical principles by his freedom of speech. He undoubtedly for a time lost the support of medical colleagues by his methods, but he later regained it, and in 1926, when the Medical Association for South Africa was formed, the *Record* became the official organ of the new body under the title of the *Journal of the Medical Association of South Africa, B.M.A.*, popularly abbreviated into the *S.A. Medical Journal*. He edited the paper for two years after its transference, and was appointed Emeritus editor on his retirement, when his son continued the family connexion by appointment as general and business manager. Dr. Darley-Hartley was returned at the head of the poll at the election of the new S.A. Medical Council in 1928, his age only precluding him from the presidency, and he was the oldest member of the B.M.A. in the Dominion and among the earliest to hold the gold medal for meritorious service.

He was a fine champion of medical rights, a vigorous forcible publicist, and a considerable scholar. His 80 years were full and valuable ones.

EDWARD JOHN CAVE, M.D., F.R.C.P. Lond.

THE death occurred on Feb. 16th of Dr. E. J. Cave, consulting physician to the Royal United Hospital, Bath, and a well-known practitioner in the city and neighbourhood. He was born in 1860 and received his medical education at St. Bartholomew's Hospital, where he was a successful student. He obtained the English double qualifications in 1883, and in 1885 graduated as M.B. Lond. with the gold medal in medicine. He held the house appointments at St. Bartholomew's and proceeded to the M.D. degree in 1886, qualifying for the gold medal, and he had undoubtedly a promising future before him in London. He decided, however, after acquiring experience through further appointments, to enter general practice. He was resident medical officer at the Royal United Hospital, Bath, and subsequently held similar appointments at the Royal Infirmary, Newcastle-on-Tyne, and at the Leeds Public Dispensary. He then commenced practice at Crewkerne, but in 1898, a vacancy having occurred on the medical staff of the Royal United Hospital, it was suggested to him by members of the staff, who had been impressed by his previous work among them, that he should be a candidate for the post. He was duly elected as assistant physician, and in the following year became full physician to the institution, taking at the time the diploma of M.R.C.P. Lond. He rapidly secured a leading position in professional circles and his services grew in request as a consultant both in Bath and through a wide area in the county. He came to be a recognised authority upon spa treatment; he left no written work on the subject, which is probably to be regretted as his experience in connexion with rheumatic diseases was very large, but a paper published in 1901 on pneumococcal arthritis displayed his ability as a writer, while a presidential address upon the spa treatment of neurasthenia, delivered in 1907 before the Bath and Bristol branch of the B.M.A., made a great impression upon a large audience.



DR. CAVE

Dr. Rupert Waterhouse writes: "As a diagnostician, Dr. Cave had few equals. This was in consequence of his thorough knowledge of his profession (which he always kept up to date, being a great reader with a very retentive memory), keen powers of observation, and a quite unusual capacity of seeing things in their true perspective. His mind was essentially well balanced, and his outlook on life sane; but only those who were intimately associated with him knew how high was his standard of professional ethics. With him the interests of the patient were ever the primary consideration, but so great was his tact and his sympathetic knowledge of human character, that this was never obtrusively, and certainly never offensively, presented, and few were so gifted as he in dealing with delicate situations, without, on the one hand, sacrificing his ideals, or, on the other hand, giving offence. He had the distinguishing trait of never being in a hurry. However great the pressure of work, more was never undertaken than could be achieved by orderly, methodical arrangement. It came to many as a surprise to find behind an exterior so serene, so composed, and so dignified a mind so alert and so unerring in its lightning grasp of the essentials of a problem. Equally noteworthy was the sound common sense which characterised his advice on the lines on which the treatment of a patient should be conducted. He not only impressed, but endeared himself to all with whom he came in contact, and his sympathetic nature and perspicacity led to his being the confidant of many who took to him troubles and difficulties of varying nature. He was one of the finest chess players in Somerset, and this was his chief recreation, though he was fond of a game of billiards, and until the last year or two, of a round of golf. He will be greatly missed by a large circle."

Dr. Cave had been a widower for ten years. His only child, a married daughter, survives him. His final illness was brief, for he was the subject of a hemiplegic seizure, four days after which he passed peacefully away at his residence in Bath.

PANEL AND CONTRACT PRACTICE

Serum and Vaccines in Insurance Practice

COMPLAINTS that some local authorities do not supply sera or bacterial vaccines to insurance practitioners were made at a meeting of the North of England joint insurance (prescription) committee held at York on Feb. 14th. At Malton, it was stated, the authority only supplied serum if its own medical officer administered it. In Northumberland sera were supplied on application to the medical officer of health, but (except for anti-diphtheria serum) the patient was asked to pay if he was able.

A report of the discussion suggests that the speakers did not always distinguish clearly between the position of the non-insured person and that of the insured. Certain sera (e.g., diphtheria) are usually supplied by local authorities to all comers gratuitously, and when a charge is made for other varieties it is made only to non-insured persons who can afford payment. The committee came to the conclusion that insured persons have a right to such biological remedies as they stand in need of, for under the Terms of Service they are entitled to receive, free of charge, "all proper and sufficient medicines," &c. The insurance committee pay for such medicines, which include vaccines and sera, from the Drug Fund; and the decision whether they are needed lies with the insurance practitioner treating the case. If time permits, he can write a prescription on the ordinary insurance form, and the patient then obtains the serum from the chemist of his choice, and brings it back to the doctor, who administers it. Alternatively the practitioner can pay for and obtain such serum himself and reclaim the cost on a special form from the insurance committee. The one thing that is quite certain is that he must not make the patient pay for serum or vaccines if he (the doctor) believes that it is required. He must, however, remember that the insurance committee will refuse payment if a free supply can be had from the local authority. Where such a supply is obtainable the patient should be asked to get it from the local authority; otherwise the practitioner will be surcharged if serum is ordered by him on a prescription form, or his claim will be disallowed if he purchases it privately.

Charging Fees to Insured Persons

Panel practitioners who ask fees of insured persons should be familiar with the circumstances in which this may be done. The authorities take very serious notice of infringements of the regulations which govern them, and medical service subcommittees which hear complaints about fee-charging almost always advise the withholding of quite large sums from the remuneration of practitioners found guilty of such breaches of the Terms of Service.

In one of two cases of the kind reported at the last meeting of the insurance committee for London the doctor was ordered to return £10 to his patient, and the Minister of Health was asked to withhold £60 and to remove his name from the list of insurance practitioners for London—the latter request being added by the full committee to the recommendation of its medical service subcommittee. The offence, it appears, was aggravated in several ways. The practitioner charged 2*s*. 6*d*. a visit and 5*s*. on Sundays to a woman, 82 years of age, who had a bad memory; he had attended her for a long time at intervals, and she was on his panel list. When the clerk wrote to him about the complaint he replied that he had not on any day charged the patient 2*s*. 6*d*. or 5*s*., and before the subcommittee he tried to make a distinction between receiving 2*s*. 6*d*. and charging it. He further induced this woman, who cannot read or write (beyond signing her name), to sign a statement that he had charged her only once and had subsequently refunded the money, and he also, it was stated, "manufactured an entry" on the medical continuation card, between the ordinary printed lines on which all other entries were placed, stating that he had refunded 2*s*. 6*d*. on Oct. 9th, the amount accepted in error on Sept. 27th. Three previous complaints about fee-charging had been successfully brought against him in past years, and in two cases money had been withheld.

In the second case the practitioner was ordered to refund £10 and the Minister was asked to withhold £40 from his remuneration. The complaint here was that the practitioner received serum from a hospital gratuitously and charged 3*s*. 6*d*. each time for its intravenous injection. He admitted that any ordinary general practitioner could do this; he did not, in other words, claim it to be a special service outside the Act for which he would be entitled to charge after the appropriate claim had been passed. It happened that the only source of income of this patient was 7*s*. 6*d*. a week, the disablement benefit paid by the approved society. The practitioner stated that he did not know this, but as in a previous medical service case he had rendered an account for private certification to an insured person, the dates given being untrue, the subcommittee did not place much reliance on what he said.

The penalties in these cases were large because it was felt that the charging of fees improperly inflicts gross injustice on insured persons and is calculated to bring the insurance medical service into disrepute. Both practitioners have the right of appeal to the Ministry.

Premature Publicity for Complaints

It is interesting to note here that London evening newspapers published a short statement of the first of the above cases on Wednesday, Feb. 21st, before the medical service subcommittee's report had been carried or amended by the full insurance committee. The full committee meeting took place on Feb. 22nd. The agenda of the London insurance committee is on sale to the public and the press one day before the committee meets, and contains all the reports of the subcommittees, including those of the pharmaceutical service subcommittee and of the medical service subcommittee. The London committee is the only one in England which publishes such reports before they have been confirmed and amended by the main committee, and this practice is unfair to the practitioner or chemists concerned. Representations have been made by the Insurance Acts Committee to the Ministry of Health about its injustice, but so far without success.

Sensational headlines in the press are bound to influence members of the insurance committee who have not heard the evidence given in the case, and may not even have read the report on it, and it is not impossible that in the first case reported above the committee would not have taken the additional step of asking the Ministry to remove the doctor's name from the medical list if so much attention had not been called to the case by the evening papers. The medical service subcommittee had, it was stated at the full committee meeting, gone into that side of the question very carefully,

but had decided against the suggestion to remove the name. The main committee, however, had no doubt about it; indeed, it nearly passed a resolution that the case should be referred to the General Medical Council, though no one defined the offence with which the practitioner was to be charged before that body. A member eventually pointed out that the function of the insurance committee was to deal with insured persons and not with general practice, and it remains for the Ministry, after it has dealt with the request for removal of the name from the medical list, to consider whether further action is necessary.

The procedure of other insurance committees is to publish such reports (if and as amended) at the rising of the committee; before the full meeting they are circulated privately to members. The committee in London is largely influenced by some of its members who are also members of the London County Council; for the L.C.C. agenda is obtainable by the press and the public before the council meetings and before disciplinary decisions made by subcommittees against staff members have been confirmed. As a rule, however, there is likely to be much more press publicity in cases where a doctor found to be doing something wrong—especially in connexion with the insurance medical service—than there is for decisions about the offences of members of the staff of L.C.C. departments.

PUBLIC HEALTH

LOCAL AUTHORITIES AND DEFECTIVE HOUSES

LOCAL authorities often find it difficult to compel owners of working-class dwellings to keep them in proper repair. The legislation on the subject has been built up gradually by a process of trial and error, and is not by any means adequately understood. Nevertheless it is sufficient, if rightly used, to give a local authority full power over the landlords in its district.

How the council of the royal borough of Kensington worked out a water-tight procedure was described by Dr. James Fenton, the medical officer of health, at a meeting of the Royal Sanitary Institute on Feb. 15th. It is based on Sections 17, 18, and 22 of the Housing Act 1930, which provide among other things that when a local authority is satisfied that any working-class dwelling-house is unfit for human habitation it shall serve a notice on the person in control and any other person with an interest in the house, requiring within a reasonable time, not less than 21 days, the execution of specified works. If the notice is not complied with, the local authority may then do the work. When it intimates its intention to step in, the owner is guilty of obstruction if after seven days he begins any work. The authority can recover summarily its expenses and interest, and these can be made a charge on the premises. It can sue for the entire amount or can declare the expenses payable by instalment. For the enforcement of its charge it has the powers of a mortgagee under the Law of Property Act 1925. There is an appeal to the county court with a time-limit of 21 days against a repair notice, a demand for recovery of expenses, or an order for payment by instalments.

The Kensington procedure is contained in a number of rules which are strictly followed. No order is ever made for payment by instalments, for the council has been advised by its legal members that if any owner defaulted it could sue only for the instalment not paid. Fifty-six days are allowed for the execution of works in every case; as this time is sufficient for the building of a house the owner cannot argue that it is not sufficient for the repair of a house. When it undertakes work in default of an owner, it invites tenders from half a dozen builders and accepts the lowest, so that the charge it makes against the owner is as low as he would have been able to secure if he had had the work done by contract.

When a district sanitary inspector finds a house out of repair he warns the owner that unless the work is done properly a report will be made to the housing inspector. This officer serves a notice under Section 127 of the Housing Act 1925 that he proposes to make a survey, and the town clerk serves a series of notices under Section 32 of the 1930 Act on the person in control and on superior owners requiring them to state their interest in the property. At his original survey the housing inspector must decide whether the premises can or cannot be rendered fit for human habitation at a reasonable cost. Following the case of Cohen *v.* the West Ham Corporation, heard in the Court of Appeal last year, the inspector prepares a schedule with rough prices and comes to a conclusion whether the subsequent income from the house will justify the probable expenditure. If he proposes to go ahead, the borough engineer reviews the schedule and it goes before the public health committee. It is vital that the committee shall consider it, because they are the authority which must authorise the repairs.

The schedule requires the owner to carry out such repairs as will secure a degree of habitability as high as is reasonable in the district. It generally includes such items as the repair of defective plaster and lath work, cleansing and decoration of rooms, renewal of defective timbering, repainting, remedy of dampness, provision of adequate ventilation and accommodation for the washing of clothes, and the renewal of defective fireplaces and ovens. The schedule is served on the person in control and also on interested parties, who sometimes assist the council by themselves serving a schedule of dilapidations. A number of copies are kept and used for inviting tenders if the council has to do the work itself, so that the contractor shall not be asked to do anything that the owner was not originally required to do.

Since 1920 notices have been served in Kensington in respect of 997 houses. Of this number 846 have been adequately repaired, either by the owner or by the council; at the end of last year 55 cases were in hand. Since 1929 no case has ever been allowed to drop after the notice has been served. The council's expenditure has been just under £3300 and it has recovered £3200; the remainder, with interest, is now being collected. Its total losses up to date have been £2. Even these striking results do not show the whole of the advantages that have been gained, for many owners, realising that they are faced with a rigid but enforceable procedure, now forestall action by undertaking repairs voluntarily, and nearly all landlords begin repair work as soon as they know that their houses are about to be surveyed.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 17TH, 1934

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 20 (last week 16); scarlet fever, 3336 (last week 3263); diphtheria, 1354; enteric fever, 88; acute pneumonia (primary or influenzal), 1738; puerperal fever, 56; puerperal pyrexia, 138; cerebro-spinal fever, 42; acute poliomyelitis, 4; encephalitis lethargica, 10;

continued fever, 2; dysentery, 30; ophthalmia neonatorum, 84. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Feb. 20th–21st was as follows: Small-pox, 34 (last week 30); scarlet fever, 1895; diphtheria, 1989; enteric fever, 7; measles, 2143 (last week 1807); whooping-cough, 348; puerperal fever, 27 mothers (plus 4 babies); encephalitis lethargica, 260; poliomyelitis, 4; "other diseases," 164. At St. Margaret's Hospital there were 17 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was 1 death from small-pox, 110 (36) from measles, 16 (3) from scarlet fever, 35 (12) from whooping-cough, 65 (10) from diphtheria, 45 (12) from diarrhœa and enteritis under two years, and 87 (20) from influenza. No death was recorded from enteric fever. The figures in parentheses are those for London itself.

Birmingham reported the largest number of deaths from influenza (5), and there were 3 each in Liverpool, Manchester, Coventry, and Tottenham. Fifteen deaths from measles occurred in Leeds, 12 in Manchester, and 11 in Liverpool, and of the fatal cases of whooping-cough 6 were reported from Birmingham. Diphtheria caused 4 deaths in Leeds, 4 in Liverpool, 3 in Hull, and 3 in Birmingham. In the same week there were also 6 in Glasgow.

The number of stillbirths notified during the week was 269 (corresponding to a rate of 42 per 1000 total births), including 42 in London.

SMALL-POX IN BLACKBURN.—Of the 20 new cases of small-pox notified during the week, 13 were in Blackburn county borough. A death is also reported from Blackburn, and Dr. V. T. Thierens, the medical officer of health, informs us that it was due to small-pox "of severe type." The patient, he states, was an unvaccinated boy aged 8 years. He sickened on or about Feb. 8th and the rash appeared on the 10th. At the request of the practitioner in attendance he was visited on Feb. 11th by a medical officer of the public health department and removed to the small-pox hospital. Death occurred on the 14th.

It is reported in the press that on Feb. 27th there had been 3 deaths from small-pox in Blackburn and that 25 patients remained in hospital. The list of contacts is stated to be very complete (*Manchester Guardian*, Feb. 28th, p. 3).

MEDICINE AND THE LAW

Death after Slimming Treatment

AT an inquest at Paddington last Monday inquiry was begun into the death of a girl who had been undergoing "slimming" treatment. It appeared that Dekrysil[1] (4:6-dinitro-o-cresol) had been administered under medical supervision and with a warning to the patient against excessive dosage. The deceased, Miss Vivian Philcox, had been engaged as a cabaret actress. Her height was about 5 ft. 3 in., and her weight a little over 9 st., and she had been worried by fears of the effect of increasing weight upon her professional prospects. According to the evidence so far given, she consulted a medical practitioner on Feb. 2nd, who advised treatment consisting of steam baths, strong massage, and radiant heat; in addition, the doctor gave her dekrysil capsules to try. Each capsule, it was said, contained 50 milligrammes. From Feb. 3rd to Feb. 9th she took one a day: there was a decrease of only a ¼ lb. in weight, and the doctor told the patient she might increase the dose. How far it was increased is not at present clear. The evidence is that, after having taken 350 milligrammes by the 9th, she took 400 more by the 17th and never took more than 850 milligrammes in all. On the 20th, when the fourth bath was taken, there were no toxic symptoms. Either then or earlier the patient was advised not to take too many tablets and to discontinue their use for a few days. On Wednesday the 21st, at 5 P.M., she complained of perspiring, and was persuaded to go to bed. The doctor was telephoned for but was not available; a second doctor was consulted, who saw no reason why the girl should not go to her cabaret performance. This she did, driving her car home afterwards. Meanwhile her original medical adviser had called at the girl's home, leaving two omnopon tablets to be taken if on her return she could not sleep. The patient took these but had a restless night. At 8.30 next morning she had a bath and seemed well, but at 11 A.M. her sister saw her and suspected pneumonia. Both doctors saw her at midday; her temperature was 101·4°, and it was arranged to send her to a nursing-home in view of possible pneumonia. She reached the home but had a convulsion 15 minutes later and died. A post-mortem examination, continued the doctor in giving evidence, was made at St. Mary's Hospital; the coroner pointed out that this was not the usual procedure. It appeared that the cause of death was asphyxia from œdema of the lungs, following intense œdema and congestion of the brain due to some unexplained toxæmia. There was no sign of pneumonia, and nothing was wrong with the stomach or intestines. Microscopical examination showed no narcotic drug. Certain organs were preserved. These have been handed to Dr. Roche Lynch for examination and the coroner has adjourned the inquest to March 15th, so that the results of analysis may be available.

[1] See THE LANCET, 1933, ii., 352, 1137, 1197; Feb. 17th, 1934, p. 383.

Doctor Fined under Lunacy Act

When the Mental Treatment Act was passed as the result of the recommendations of a Royal Commission, there was much talk of avoiding the stigma of certification. Recent proceedings in the Woking police-court illustrate the risks of non-certification. Mr. A., suffering from a nervous breakdown after influenza in 1933, went to the Maudsley Hospital. He was observed there to have suicidal tendencies. He could not be detained there as a voluntary patient in the face of his constant applications to leave. His wife would not consent to have him certified. He was removed to the Clock House Nursing Home, Byfleet, kept by Dr. H. M. Palmer. An attendant slept in his room, but, in spite of all precautions, he threw himself from a second-floor window and received fatal injuries. This led to a summons against Dr. Palmer for having received a lunatic for payment in an unlicensed house. The prosecution contended that the deceased should have been certified for his own protection and that Dr. Palmer committed an offence for every day of his detention. The widow gave evidence of the death of her husband at the age of 32. In cross-examination she said she resented any suggestion that he was of unsound mind. He had spoken of suicide but she did not think he was serious. He had improved in health under Dr. Palmer's care and the death was a terrible shock to her. Dr. Desmond Curran, assistant medical officer at the Maudsley Hospital, described an attempt at suicide made by Mr. A. at that hospital; the case was certifiable but recoverable. Dr. F. E. Pilkington of the same hospital stated that he had informed Dr. Palmer that the patient was actively suicidal. Dr. Palmer, to whose high reputation Dr. Curran testified, gave evidence that he had devoted his life to the study of mental disorder. He took Mr. A. into his home for observation; there was every

chance of recovery; he did not call patients insane merely because they might have an impulse to jump out of a window. A patient might be hysterical without being a lunatic. He had observed no sign of Mr. A. being suicidal. The bench imposed a fine of £10 on Dr. Palmer with £10 costs.

Removal to Mental Institution by Mistake

It seems almost incredible that a perfectly sane woman should be forcibly removed from her home in London to a mental institution. A few weeks ago, as we have already related (Jan. 6th, p. 28), there occurred an incident in which this extraordinary mistake was alleged to have been committed. A woman was sitting in her room at Bedford Park when an official of the Middlesex public assistance committee, having apparently mistaken the address of the patient whom he was instructed to remove, entered her home and forcibly took her away to Warkworth House, an institution for mental patients. Had these allegations been substantiated before a court of law a jury could hardly have failed to award damages for assault, trespass, and false imprisonment. Her claim has wisely been settled by the Middlesex county council by a payment of 750 guineas (to include medical and other disbursements) with another 25 guineas for her legal costs. The case came up for mention in Parliament. (See p. 493).

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Unemployment Bill: Assessment of Need

On Feb. 20th the House of Commons went into Committee on the Unemployment Bill. Sir DENNIS HERBERT (Chairman of Committees) was in the chair.

On Clause 37 (Persons to whom and circumstances in which allowances may be granted)

Mr. GRAHAM WHITE moved an amendment to the effect that an allowance "shall" be granted to any person who conformed with the provisions of the Bill, instead of "may," as provided by the clause.

Sir D. SOMERVELL (Solicitor-General) said the statutory duties of the relieving officer in all cases of emergency were unaffected by the Bill. It was the duty of the Unemployment Assistance Board to give a sufficient allowance, but the amendment would have no effect on the amount of the allowance. Surely it was right that the Board should feel that it had the responsibility of giving a sufficient allowance.

Mr. GRAHAM WHITE said that in the event of the Board failing to give a sufficient allowance, and an emergency arising in consequence, the responsibility ought to be on the Board through whose negligence that situation had arisen, and not on the relieving officer.

Mr. R. S. HUDSON (Parliamentary Secretary to the Ministry of Labour) said that the Board would repay the local authority the cost of relieving cases of sudden and urgent necessity.

The amendment was negatived.

ALLOWANCES FOR DEPENDENT CHILDREN

Sir J. HASLAM moved an amendment to provide that the needs of each dependent child should not be assessed at less than 3*s*. a week. He said he refused to defend the proposal that 3½*d*. per day was enough to keep a dependent child. The amendment was not asking for anything outrageous—only 5*d*. per day for a dependent child. Supporters of the Government were anxious for the success of this Bill, which had been unjustly traduced up and down the country, but he did not want the Government to spoil the ship for a halfpenny worth of paint. A large number of local authorities were already allowing 3*s*. a week and more, and all he asked was that this should be made statutory.

Mr. G. MACDONALD supported the amendment. He said that the Parliamentary Secretary to the Ministry of Labour would not argue that 3*s*. per week was too high a figure at which to assess the need of a child. Whether the British Medical Association were correct in their figures or no, no one suggested that 3*s*. per week was too much.

Mr. R. S. HUDSON (Parliamentary Secretary to the Minister of Labour) said that the figure of 2*s*. per week represented benefit and had never been related to the amount required to maintain a child. What they were now dealing with was the question of need and the figure at which need could be assessed. The duty of the Board was to consider the need of the household as a whole as a unit. They would not necessarily achieve what hon. Members who supported the amendment had in view by laying down certain arbitrary figures as to certain of the components of that unit while leaving variable the remainder of the figures dealing with the remaining members of that unit. The amendment would go far to defeat its object by laying down the opinion of that House by implication that 3*s*. was the appropriate need of a child. He did not say that 2*s*., 3*s*., or 4*s*. was the appropriate need, because he was dealing in this Bill, and the Board would be dealing, with the need of the household as a whole. He assumed, without giving any guarantee, that when the Board came to draw up its regulations, which would be submitted to the House of Commons, it would make provision for assessing the needs of a child of 15 at a different rate from that of a child of 2 years.

Sir W. BRASS said he thought if they put the amendment into the Bill the Board when they dealt with these cases would be more likely to give at least what they considered to be in accordance with the needs of the child.

Lord EUSTACE PERCY said that even if this amendment was, as he admitted, one against which many objections could be urged it was nevertheless part of the contention which had been pressed by hon. Members on the Government and to which they had received no satisfactory reply. The Government appeared at present to have no settled policy on the subject. Therefore, in spite of the objections which might be raised against it, he proposed to support the amendment.

Mr. BOOTHBY said that the House was profoundly uneasy about the children of the unemployed in this country. It was false economy to bring up undernourished children, and some thought that there were cases very like starvation. The members of that Committee were not prepared to divest themselves of all responsibility in this matter. He hoped the Government would observe what had been said in that debate with a view to reconsidering their position in the Report stage of the Bill.

Mr. MCENTEE said he lived among the children of the unemployed in his district, and he saw the physical deterioration going on among them every day. He advised Mr. Hudson to read the report of the Ministry of Health on the condition of children in the schools. He would find that as a consequence of continued unemployment there was serious physical deterioration among the children.

Mr. LAWSON said that £56,000,000 had been taken from those who were in receipt of transitional unemployment benefit in two years. That had resulted in a state of things where they had the British Medical Association declaring that masses of the people had not a proper standard of life. The British Medical Association accepted the results of investigations in Newcastle and Stockton which led to a controversy with the Ministry of Health, and he (Mr. Lawson)

believed that in spite of the chief medical officer of the Ministry of Health the children of this country were suffering where the means test was in widespread operation. The Government said that there was not to be a destitution test such as had been operating in the past. If that was the truth, where could the Government start better than among the children? During the war we had the shame of a C 3 population, and according to some medical opinion once more the country was on the march to a C 3 population.

After further debate,

Sir H. BETTERTON (Minister of Labour) assured the Committee that there was no connexion at all between the rates of benefit under Part I. and the assessments of needs under Part II. of the Bill. If the Committee would prefer it he would insert a provision in the Bill making that clear.

The amendment was negatived by 177 votes to 125—Government majority 52.

Registration and Regulation of Osteopaths

On Wednesday, Feb. 21st, Mr. BOOTHBY asked leave to bring in a Bill to regulate the practice of osteopathy and to prescribe the qualifications of osteopathic practitioners. He said that the object of the Bill was to set up a statutory board with the necessary powers and authority to compile a register of qualified osteopaths and to provide for the admission to that register of persons who had followed a prescribed course of study and acquired a prescribed standard of professional competence. The Bill would give the qualified osteopath the right to employ a qualified anæsthetist without the latter falling under the ban of the General Medical Council. He emphasised the fact that under this Bill osteopaths did not seek inclusion in the medical profession. The Bill would eliminate many palpable quacks, while allowing practitioners of osteopathy to set up their own organisation, and to teach their own doctrines. The practice of osteopathy had now reached such dimensions that the House ought to accept responsibility either for prohibiting that practice altogether or else for allowing osteopaths to submit themselves to proper regulation in the interests of the public.

Leave was granted for the introduction of the Bill, and the measure was brought in by Mr. Boothby.

Milk Policy: New Government Scheme

On Thursday, Feb. 22nd (replying to Mr. Lambert), Mr. ELLIOT (Minister of Agriculture) said: "The Government has been giving close consideration to the position of milk and milk products in this country. As the House will be aware, there is a volume of milk surplus to present liquid requirements which is estimated to be little short of 20 per cent. of the total volume of milk sold under contract this winter, and is likely to be about 40 per cent. of the larger volume of contract supplies available in the spring and summer. This surplus milk has to find a market in manufactured form, chiefly as butter and cheese. Prices of butter and cheese are at very low levels, owing to exceptionally heavy imports and present market conditions generally. There is thus a grave danger that the price structure of the whole milk producing industry in this country will be seriously undermined, particularly when the spring and summer flush of milk comes on to the market. An expansion of the liquid milk consumption of the country would not only be of the greatest benefit from the public health point of view, but would alleviate in the most satisfactory way the difficulty of surplus milk. If this increase in consumption is to be obtained, it must be based on public confidence as to the purity of the supply. The Government accordingly proposes: (1) That for the two years beginning April 1st, 1934, the Milk Marketing Boards shall be guaranteed by the Government by means of Exchequer advances minimum prices of 5*d*. a gallon in summer (April–September) and 6*d*. a gallon in winter, in respect of milk manufactured in factories in Great Britain. For milk manufactured into cheese on farms, for which the Boards will have to assume responsibility, the same advances a gallon will be made. Details will be found in the White Paper. The advances from the Exchequer are estimated to amount to about from £1,500,000 to £1,750,000 in the first year. (2) The Government will provide from public funds a sum not exceeding £750,000, spread over the next four years. It will be the responsibility of the Boards to continue the campaign without further assistance as soon as they are in a position to do so. (3) The Government will be prepared to contribute from the Exchequer on a pound for pound basis to a milk publicity fund for a period of two years. The Government contribution will be limited to £500,000 in either year, according to the amount contributed by the Milk Marketing Boards. The grant will be contingent on the submission of an approved programme containing, inter alia, provision for the supply of milk to schools at reduced rates. The requisite legislation will be introduced at an early date, and, in view of the widespread interest which is being taken in the subject, the Government hopes it will be facilitated by all parties in this House."

Sir H. SAMUEL: Can the right hon. gentleman give the House an assurance that these advances will in fact be repaid?

Mr. ELLIOT: That must depend upon the level of prices in the world markets for the next four years, a matter on which I am unable to prophesy.

Replying to Mr. ATTLEE, Mr. ELLIOT said that he trusted that a very substantial proportion of the £500,000 for publicity would be devoted to the best form of publicity, namely, securing an adequate supply to consumers at reduced rates.

Mr. BUCHANAN: May I ask the right hon. gentleman if we are to draw the inference from his answer that we are not now getting a pure milk-supply; and further why the Government should subsidise an industry if he is sure we are not getting pure milk?

Mr. ELLIOT: I think it is common knowledge that the purity of the milk-supply in this country is not as great as we should all like to see it. The desirability of ensuring a purer milk-supply is a responsibility which is not that of one section of the community but of the community as a whole.

The White Paper, circulated later, contained the details of the proposed arrangements for repaying the advances.

Rural Water-supplies

On Thursday, Feb. 22nd, Sir HILTON YOUNG (Minister of Health) moved the second reading of the Rural Water Supplies Bill which authorises grants (limited to £1,000,000 for the whole country) to assist rural areas to make better provision for water-supplies. He announced that if the present drought continued into March special precautionary measures would be taken and would be applied progressively. The towns, he said, were well supplied with water, but the rural areas where there were no powerful organisations were in a less satisfactory position. He had asked all the rural district councils to report to him what emergency measures they had taken and proposed to take, and he promised that the Ministry of Health would give prompt assistance to those bodies through its expert officials wherever such assistance was required. He suggested that special attention ought to be paid to the possibility of purifying by modern methods sources of water-supply which had hitherto been regarded as impure.

Mr. GREENWOOD, speaking for the Labour opposition, described the Bill as wholly inadequate, and proposed that a national authority should be set up with subordinate regional committees.

The Bill was read a second time by 188 votes to 36.

Unemployed Persons and Maternity Benefit

In the House of Commons on Monday, Feb. 26th, the Unemployment Bill was further considered in Committee.

On Clause 37 (persons to whom and circumstances in which allowances may be granted),

Sir H. BETTERTON (Minister of Labour) moved an amendment providing that the whole of any maternity

benefit under the National Health Insurance Acts, 1924 to 1932, exclusive of any increase of such benefit by way of additional benefits and of any second maternity benefit, should be disregarded in determining the need of an applicant under Part II. of the Bill. He said that looking at the Bill as a whole it was right that the £2 maternity benefit should not be included. As the Bill stood now, it might be said that among the resources of the family the £2 maternity benefit which came in by reason of the Health Insurance Acts should be taken into account. It was clear that the needs of the family increased at the same time, because this sum was earmarked for a specific purpose—namely, to help the woman.

Mr. BUCHANAN said the amendment was of no value because the first £2 was merely a bookkeeping transaction from the approved society, through the person concerned, to the doctor and the nurse. What was important was the second sum, which was given to meet the additional human needs of the mother and child, and he trusted that the second £2 would also be left out of account.

Mr. R. S. HUDSON (Parliamentary Secretary to the Ministry of Labour) said that although the amendment limited the actual amount to be disregarded under the statute to the first £2, it was clear that wherever the Unemployment Assistance Board's officer was shown by a young married couple that they had in fact spent the additional money on their needs, the sum would be regarded as being available for those needs, and though the amount would not be disregarded, the needs would be allowed for. The Board were prohibited from taking medical need into account. If the amendment were not carried the man would have received £2 for maternity benefit which the Board would have had to take into account. It would have been available for the household. It was very doubtful, as the need of the woman was primarily medical, if the Board would have been entitled to say that this £2 should be available only for medical benefit. It was to make quite sure that the Board should say that the £2 was definitely for the woman's medical needs that the amendment was being moved. Any needs other than medical needs would be part of the needs of the man which the Board would have to take into consideration.

The amendment was agreed to.

Contraceptives Bill

In the House of Lords on Tuesday, Feb. 27th, the Contraceptives Bill was considered in Committee.

Lord DAWSON moved an amendment to Paragraph (*c*) of Clause 1 removing the restriction on the display of contraceptives in, on, or outside any shop. He said that on second thoughts he believed it was a wise amendment. The contraceptives themselves were extremely dull-looking things and would not attract the attention of anybody. It was always undesirable to restrict, unless there was a good case for restricting, and he did not think the case for restriction here was adequate. It had, further, been pointed out to him that in the less populous districts many married women were shy of asking for contraceptives, but that if they were shown in the window of shops they would go in and ask for "what was in the window." He was anxious to make it clear, as introducer of the Bill, that although the chief object was to protect immature youth by doing away with obtrusive sale and display, he was equally anxious to do nothing which would put any unreasonable, or indeed, increased resistance in the way of contraceptives being made available to all sections of the married population. What really attracted youth was the picture, the drawing, the photograph, and the glaring written description. Youth would never be attracted by the dull appearance of the contraceptives themselves.

The Bishop of LONDON, opposing the amendment, said that he hoped Lord Dawson would reconsider it. His argument applied exactly the other way. The amendment would make it easier for the shy youth Lord Dawson wanted to protect to go inside a shop where contraceptives were sold. The whole point was that young men should not be attracted to go in and buy these things.

Lord SNELL said that unless the Bill received the most meticulous attention it was likely to do more harm than good. If Lord Dawson with his technical experience, felt that the amendment would achieve the object he desired he (Lord Snell) was inclined to accept his judgment in the matter, but there were possibilities of chemists engaged in legitimate business being harried by persecution of all kinds in borderline cases. The clause seemed so ill-defined, even with the amendment, as to make chemists engaged in selling necessary and entirely hygienic instruments subject to prosecution.

The Archbishop of CANTERBURY said that the amendment would deprive the Bill of much of its value. There was nothing in the Bill, even amended, that would prevent attractive labels being attached to contraceptive articles. Those labels would arouse the curiosity on the part of young people which the Bill sought to prevent. There must be ample sources from which married people could get information on the use of contraceptives, especially from the experience of other people.

Lord DAWSON said he had made it his business to find out the views of the pharmaceutical chemists. They were a very well-organised body, and within the last six months they had had conferred on them powers which enabled them to take disciplinary action with regard to their members. The chemists' shops were well controlled now and would be under still better control in future. He had had it from the organisation of the pharmaceutical chemists that there was nothing in this amendment or the others following it of which they in any way disapproved. It was the pictures and written descriptions which really had a bad influence. The clause, as amended, would permit of nothing more than a simple label or simple notice. He had an amendment down later on, which would further cut down anything that might be called dazzling. The question had been raised whether women would be shocked, but it must be remembered that they were not dealing with educated people here. Those interested in birth control were only too anxious to extend knowledge on the subject to the less educated classes. Birth control had arrived in the educated classes, but that was not fully the case in regard to the less educated classes. Poor women, who were less educated, were often shy of asking for things. Some years ago, when sanitary towels were put into chemists' shops, a woman would go into the shop and would not ask for what she wanted. If, however, she happened to see something labelled "sanitary towels," she would say, "I want that." He still thought that the contraceptives themselves would have very little attraction without the descriptions and drawings. Those drawings were often only fit for an anatomical museum. The Bishop of London seemed to think that pornographic shops were the same as shops selling contraceptives, but if all contraceptives were abolished to-morrow they would still have pornographic shops. So long as there were individuals with that type of mind there would be pornographic shops, but to saddle contraceptives with the whole of pornography was an entirely mistaken conception.

The amendment was carried by 38 votes to 20.

Lord DAWSON moved an amendment bringing illuminated signs advertising contraceptives under the restrictions of the paragraph, and this was agreed to.

Lord DAWSON also moved, at a later stage, to add to Paragraph (*d*) the following: "Provided that nothing in the foregoing provisions shall render unlawful (i) the sale or offer for sale of any contraceptive by a qualified medical practitioner, registered nurse or certified midwife, to a person or to the husband or wife of a person, whom the practitioner, nurse, or midwife is attending professionally; (ii) the sending or delivery to any person of any book, news-

paper, or magazine containing advertisements of contraceptives, unless the book, newspaper, or magazine is published wholly or mainly for the purpose of advertising contraceptives." He said that he was anxious that medical practitioners should be perfectly free to sell contraceptives so far as their individual patients were concerned.

The amendment was agreed to.

The Earl of IDDESLEIGH moved an amendment to paragraph (*d*) to increase the age from 18 to 21 years of any unmarried person in regard to whom it would be an offence to send or deliver any circular, advertisement or any other document (for the purpose of any trade or business) containing information relating to contraceptives.

The Bishop of LONDON suggested that Lord Dawson should accept the age of 19. Personally he did not want to make the Bill so drastic that it would not go any further, as he feared would be the case if 21 years were inserted.

The Earl of FEVERSHAM, on behalf of the Home Office, stated that it would not make much difference in the administration of the law whether the age was 18 or 21.

Lord DAWSON said that when he was trying to frame the Bill he found more difficulty over this subsection than any other. On the one hand the object was to protect immature youth, and on the other hand one had to avoid doing anything which would be an interference with legitimate propaganda. Masses of the people matured more quickly than in former days and married early, and one did not wish to keep propaganda from a youth or girl engaged to be married and wanting to marry. That propaganda would sometimes decide whether they would marry or not if they knew whether or not they could control their offspring. It was very difficult to know exactly where the line should lie. He had for many years worked in a similar district to that of the Bishop of London, and he was led to put the age at 18 on the whole by what he knew of the maturing of youth. If anybody wished to put the age at 19, he did not much mind, but he was sure that 21 would be wrong. The result would be to drive the whole thing underground, which was the one thing they wanted to avoid.

The amendment was negatived.

Lord MERRIVALE moved to insert at the end of Clause 1 a new clause making the supply of contraceptives to an unmarried person under 21 a misdemeanour punishable by fine or imprisonment. He said that there should be an effective check on the distribution of contraceptives among unmarried persons in a mode which could only encourage immorality and break down our social system.

Lord BANBURY asked how a shopkeeper was to know whether a young woman was married or what her age was?

Lord SNELL said that one certain effect of the amendment would be to drive this trade into illicit channels.

The Earl of KINNOULL asked whether purchasers would be expected to produce birth certificates and "marriage lines."

Lord DAWSON said he thought Lord Merrivale would defeat his object by the amendment. They wanted on the one hand to remove the slur from contraception and get it into right channels; and on the other hand to prevent what was illicit. Some of these contraceptives were used not only for the control of conception but for the prevention of venereal disease. Did they want an increase in the illegitimate birth-rate? They would certainly get it if this clause were inserted. No ecclesiastical authority in the past had ever succeeded in crushing out contraception. He suggested that in this particular age they were less likely to be successful than in any previous age. They had before them the example of prohibition in the United States. If the sale of contraceptives were made illegal, something similar to what happened in America under prohibition would happen here. The trade would be driven underground.

The Bishop of LONDON said that he hated the whole business, but he wanted to get something from the Bill. He feared that if Lord Merrivale's amendment were accepted Lord Dawson would withdraw the Bill and that nothing would happen. The Bill was very restricted, but he wanted to get it through.

Lord MERRIVALE withdrew his amendment.

On Clause 2 (Interpretation), Lord DAWSON moved an amendment to strengthen the definition of contraceptives in order to prevent their being sold under a guise. As amended, the definition read, "any appliance, instrument, drug, preparation or thing, designed, prepared or intended to prevent pregnancy resulting from sexual intercourse between human beings."

The amendment was agreed to.

The Earl of IDDESLEIGH moved an amendment to include among the meanings of a "public place" any garage and licensed premises "to which the public have or are permitted to have access."

Lord DAWSON accepted the amendment, to include "a public garage and licensed premises," and it was agreed to.

A further amendment by Lord BERTIE to insert among the "public places" a "place of entertainment" was also agreed to.

The Bill, as amended, passed through Committee and was reported to the House.

The Case of Mrs. Broad

In the House of Lords on Tuesday, Feb. 27th, the Earl of KINNOULL drew the attention of His Majesty's Government to the recent case of a Mrs. Broad, and moved "That in the opinion of this House the removal of persons whose sanity is in question should not be dependent on a telephone message nor carried out in the absence of a responsible person."

Viscount GAGE (Lord-in-Waiting) said that there was no dispute that a most unfortunate mistake was made and the Government were quite prepared to accept the words of the motion. They agreed with the facts Lord Kinnoull gave. The relieving officer, to whose attention the case was first drawn, reported on the telephone to the relieving officer specially appointed to deal with these emergency removals and it was this latter officer who apparently misunderstood the address and proceeded to arrest the wrong person. Their lordships would be concerned to know how far a mistake of this kind could be attributed to a defect in the Act of Parliament or the procedure arising out of the Act, and how far it must be attributable to individual carelessness. In this particular case the relieving officer to whose attention the case was first drawn did not himself proceed to remove; he reported to the relieving officer whom the Middlesex county council had appointed to deal with cases of this sort. He was appointed under the Act of 1891. It was clear that the first relieving officer transferred all responsibility to the second official. One of the objects of the procedure was to enable experienced officers to deal with actual removals of this kinds of case. It was always an invidious task to lay blame publicly on an officer doing this class of work. His duties were not very easy. If he acted with too much precipitancy this sort of case might occur. If, on the other hand, he took too long in preliminary inquiry, it was quite possible that some mishap might take place and the patient might suffer some serious injury. The Government did feel that such an elementary mistake as a mistake about an address could not be excused on any ground. The upshot of the whole matter was that the Middlesex county council made special inquiries. They suspended the responsible official, compensated Mrs. Broad to the tune of £750, and apologised profusely for the indignity to which she had been subjected. As for the future, Lord Kinnoull had made some suggestions and the Government would consider them; but the whole object of this

procedure, which was to enable action to be taken quickly and to prevent mishap to the patient, would be lost if they fettered the responsible official's discretion too much. It would have to be done very circumspectly. Lord Kinnoull had spoken of this matter as if it were a fairly common experience. He had no information of that sort. Arrangements were made with the relatives for the apprehension of the real lunatic, but there was carelessness and all these arrangements naturally went by the board. Lord Kinnoull had alarmed their lordships somewhat unduly by saying that any one of them might be subjected to a similar experience. In the whole experience of the Board of Control this was the only case they could recollect of this particular kind. Their lordships could rest assured that it was very unlikely that it would occur again.

The Earl of KINNOULL asked the Minister to urge on the Ministry of Health the very great advantage which would accrue if trained mental nurses were used instead of ordinary male nurses.

The resolution was agreed to.

Indian Pay

In the House of Commons on Monday, Feb. 26th, Sir S. HOARE (Secretary of State for India) presented the Indian Pay (Temporary Abatements) Bill, a measure to extend the period in respect of which abatements from pay may be made under the Indian Pay (Temporary Abatements) Act, 1931, subject to a reduction in the percentage to which such abatements are limited. The Bill was read a first time.

HOUSE OF COMMONS

WEDNESDAY, FEB. 21ST

Motor-car Tail Lights

Mr. LEONARD asked the Minister of Transport whether his attention had been called to the inadequacy of most tail lights on motor vehicles to illuminate their number plates; and if he would make compulsory the use of a tail light so enclosed as to shine through white opaque glass letters and numbers.—Mr. OLIVER STANLEY replied: That he did not at the present feel justified in making compulsory the use of internal illumination.

In answer to other questions in regard to the focusing of head lights and their control, Mr. STANLEY said that he had asked the Society of Motor Manufacturers and Traders to consider the question of the lighting of vehicles generally in relation to public safety, when he would review the whole matter.

THURSDAY, FEB. 22ND

Secret Inquest

Mr. JOHN asked the Home Secretary whether he would communicate the result of his inquiry into the secret inquest held at Ton Pentre on Dec. 29th last.—Sir JOHN GILMOUR replied: I have seen references in the press to the inquest in question, including a statement attributed to the coroner that he did not direct the exclusion of representatives of the press. The conduct of the inquest was a matter for the coroner and did not call for any inquiry on my part.

Housing and Slum Clearance

Mr. ALEXANDER RAMSAY asked the Minister of Health how many houses, apart from replacements under slum clearance schemes of such a character as to let at rentals of not more than 11*s.* per week, inclusive of rates, were at present under construction in the county boroughs of West Bromwich, Wednesbury, Dudley, and Smethwick, respectively.—Sir HILTON YOUNG replied: The only returns available of houses under construction relate to houses being erected by local authorities and do not specify the prospective rents. The Wednesbury town council are now erecting 72 houses under the Housing Act 1924, but the other authorities mentioned have, apart from slum clearance proposals, no housing schemes in progress.

Major NATHAN asked the Minister of Health whether he was aware that, according to the report of the valuer to the London County Council, more than 200,000 persons made application for housing accommodation to that council during the financial year 1932–33; and what action he was taking to secure that adequate housing schemes were put in hand to deal with the present shortage of houses in the administrative county area.—Sir HILTON YOUNG replied: The report referred to shows that 100,000 persons called at the central estate office of the County Council and that 109,000 persons (not necessarily exclusive of these 100,000) made inquiries by letter. As regards the second part of the question, the needs of the county area must be met partly by provision outside the county and, during the year ended Sept. 30th last, more than 57,000 new dwellings were provided in the metropolitan police district.

Durham University Royal Commission

Mr. MCKEAG asked the Chancellor of the Exchequer whether the Royal Commission to inquire into the organisation of the University of Durham and its constituent colleges had yet been appointed.—Mr. CHAMBERLAIN replied: I am glad to say that Lord Moyne has consented to be chairman of this Royal Commission. I hope to be able at no distant date to announce the names of the other commissioners.

MONDAY, FEB. 26TH

Criminal Lunatics at Broadmoor

Mr. D. G. SOMERVILLE asked the Home Secretary the number of criminal lunatics at Broadmoor who were originally imprisoned for the terms of their natural lives; and how many prisoners in Broadmoor had been detained there over 20 years.—Sir J. GILMOUR replied: There are 27 persons at Broadmoor who were certified insane and removed there while serving a sentence of penal servitude for life. The total number of patients at Broadmoor who have been detained there for over 20 years is 204.

Overcrowding in Glasgow

Mr. ANSTRUTHER-GRAY asked the Secretary of State for Scotland whether he was aware that there were in 1931 five cases of 15 persons or more living in a two-roomed house in Glasgow; and whether action had yet been taken in all these five cases to abate the overcrowding.—Sir GODFREY COLLINS replied: The answer to the first part of the question is unfortunately in the affirmative. I am having inquiries made into the point raised in the second part of the question and I shall communicate the result to my hon. friend.

TUESDAY, FEB. 27TH

Town and Country Planning

Mr. MANDER asked the Minister of Health if he had now appointed an advisory committee in connexion with the operation of the Town and Country Planning Act, 1932; and if he would state the terms of reference and the names of members.—Mr. SHAKESPEARE (Parliamentary Secretary to the Ministry of Health) replied: The arrangements for the appointment of the committee are nearly complete, and the names of the members will be announced shortly. The terms of reference are: "To consider general questions relating to the administration of town and country planning in England and Wales, and any other related matters which may from time to time be referred by the Minister of Health to the committee, and, as occasion may require, to make recommendations to him."

Medical Treatment of Unemployed People

Mr. BATEY asked the Minister of Health (1) if he was aware that 24 district poor-law medical officers in the county of Durham were complaining of financial loss, owing to 15,000 unemployed people having had their right to medical benefit stopped, and what steps he proposed to take in the matter; and (2) if he was aware that not less than 15,000 people in the county of Durham had lost their medical benefit as from Dec. 31st, 1933, as a result of the National Health Insurance and Contributory Pensions Act, 1932; and if he would consider making some provision so that these people could have medical attention.—Mr. SHAKESPEARE replied: A considerable number of insured persons in the administrative

county of Durham have recently lost their title to medical benefit under the health insurance scheme. My right hon. friend has seen reports in the press that a number of district medical officers in Durham have made representations to the local authority for an increase of remuneration. This is a matter for the local authority with whom he is getting into touch as to the position. The district medical service is available for those who are no longer within the insurance scheme.

Mr. BATEY: Is the hon. gentleman aware that the figures are taken from the Medical Union, who ought to know the number of men who have lost benefits?

Captain CLIFTON BROWN: Does my hon. friend realise that the county council elections in Durham may afford an explanation of these questions?

Mr. MAXTON: That has nothing to do with the matter. Does the hon. gentleman realise that a quarter of 15,000 people is over 3000 in one county who are unable to get medical attention when they are sick?

Mr. SHAKESPEARE: That is not so.

Mr. MAXTON: It is so.

Mr. SHAKESPEARE: The attention they will get will be from the district medical service, and they will be in the same position as all those people outside insurance.

Mr. MAXTON: Does the hon. gentleman realise that these officials were already overworked before this additional work was put upon their shoulders, and that it is quite impossible for them to cover the new job.

No answer was given.

Mr. BATEY said he could assure the House that the county council elections were never in his mind when he put the question.

MEDICAL NEWS

University of Cambridge

On Feb. 23rd the following degrees were conferred:—

M.B. & B.Chir.—C. W. Walker, D. W. Smithers, and L. T. Bond.

M.B.—A. R. R. Le Fleming.

B.Chir.—W. I. Bain.

University of London

At a meeting of the senate on Feb. 21st Dr. R. J. Lythgoe was appointed university reader in the physiology of the sense organs at University College. Since 1928 Dr. Lythgoe has been honorary lecturer at the College. The William Julius Mickle fellowship for 1934 was awarded to Dr. Lucy Wills, chemical pathologist to the Royal Free Hospital.

The title of Fellow of University College, London, was conferred on Mr. A. S. Parkes, D.Sc., F.R.S., of the National Institute for Medical Research, who was formerly Sharpey scholar and honorary lecturer in physiology at the College. The title of honorary Fellow of University College, London, was conferred on Emeritus Prof. Karl Pearson, who last year resigned from the Galton chair of eugenics in the University.

Instruction for D.P.M.

The second part of a series of lectures and practical courses at the Maudsley Hospital, Denmark-hill, London, S.E., which is primarily intended for candidates for diplomas in psychological medicine, began on Feb. 26th and will continue until the end of May. Further particulars may be had from Dr. Golla, hon. director of the medical school at the hospital.

London School of Hygiene and Tropical Medicine

Sir Austen Chamberlain and members of the standing committee of the Ross Institute, which is now incorporated with the London School of Hygiene, are holding a reception for the Indian Tea Association on Monday, March 19th, at 4 P.M. Dr. G. C. Ramsay will show a film illustrating malaria control on tea estates in Assam and Bengal, and Dr. G. P. Crowden will demonstrate his method of heat insulation for human comfort (see THE LANCET, Jan. 6th, p. 37, and Feb. 24th, p. 411).

Chadwick Public Lectures

On Friday, March 9th, at 7.30 P.M., Dr. Dan McKenzie will speak at Bradford, in the hall of the Technical College, on noise in relation to public health. On Monday, March 12th, at 5.30 P.M., at the house of the Royal Society of Tropical Medicine, 26, Portland-place, London, W., Dr. C. S. Myers, F.R.S., principal of the National Institute of Industrial Psychology, will discuss the causes and prevention of human accidents. Two lectures have been arranged for May: on the 8th, also at the house of the Royal Society of Tropical Medicine and Hygiene, Dr. Jane Walker will speak on village hygiene; and on the 29th, at the Royal United Service Institution, Whitehall, Dr. John Boyd Orr, director of the Rowett Institute for Research in Animal Nutrition, will give a lecture on the national food-supply and public health. On June 14th, in the Chelsea Physic Garden, Mr. E. Augustus Bowles will speak on simples and herbals. The secretary of the Trust is Mrs. Aubrey Richardson, 204, Abbey House, S.W.1.

Indian Medical Council

The Government of India has appointed Dr. Farquhar Macrae, formerly lecturer in clinical surgery in the University of Glasgow, to the post of secretary to the Indian Medical Council. The Council was constituted under the Indian Medical Council Act of 1933.

Royal Society of Medicine

The tenure of the William Gibson research scholarship has been extended to Dr. Audrey E. Russell, the present holder, for a third year.

The fourth award of the Nichols prize has been divided equally between the essays submitted by Dr. John Smith, of Aberdeen, and Dr. Ronald Hare, of Queen Charlotte's Maternity Hospital, London.

Post-graduate Work at Aberdeen

A course of post-graduate study will be held at the Royal Infirmary and the Royal Hospital for Sick Children from May 1st to June 14th. The lectures and demonstrations will be given at 3.15 P.M. on Tuesdays and repeated at the same time on Thursdays. Applications should reach the secretary of the University of Aberdeen not later than April 27th.

Food Education Society

Two lectures on the prevention of disease through diet will be given for this society by Dr. Clement Nicory at the London School of Hygiene and Tropical Medicine, Keppel-street, London, W.C., on Tuesdays, March 20th and 27th, at 5.15 P.M. Sir Ernest Graham-Little will be in the chair at the first lecture.

Course on Disorders of Digestion

A fortnight's course on the medical and hydrological treatment of digestive and nutritional disorders will begin on April 23rd at the Hôpital Necker, Paris, under the direction of Prof. Maurice Villaret. There will be a study tour to Vichy from May 5th onwards. Particulars may be had from the laboratoire d'hydrologie de la Faculté de Médecine de Paris.

Institute for the Scientific Treatment of Delinquency

Lord Horder presided at the annual general meeting of this institute, which has now been founded a little over a year. The report shows that it has established a clinic at the West End Hospital for Nervous Diseases, staffed by consulting psychiatrists; 16 patients have been referred by magistrates and others and are now under observation. Several delinquents, under the advice of the staff, have sought treatment at mental hospitals. The institute is being well supported and the first year's accounts show a surplus of over £50. Mr. Claud Mullins addressed the meeting on the practical difficulties which beset the magistrate who realises the value of scientific assistance with his offenders and desires to use it. Some of these obstacles are caused by the necessities of procedure, but others, he said, lie in the fact that many delinquents must be incarcerated and a large number do not desire to be cured. Dr. J. A. Hadfield and Dr. Emanuel Miller, who also spoke, met several of Mr. Mullins's criticisms, and Lord Horder declared that the cold douche which he had administered could not fail to stimulate this active and growing body.

Royal Medical Benevolent Fund

A meeting of the Ladies' Guild will be held at B.M.A. House, Tavistock-square, on March 7th, at 3 P.M. Lady Cheatle will preside and Dame Madge Kendal will speak.

University of Leeds

Mr. John Foster has been reappointed, and Mr. G. W. Black appointed, university lecturers in ophthalmology. Prof. J. K. Jamieson has been reappointed representative on the General Medical Council.

British Orthopædic Association

The Robert Jones prize and gold medal for 1933 have been awarded jointly to Mr. R. W. Butler, honorary surgeon to Addenbrooke's Hospital, Cambridge, and to Mr. H. J. Seddon, resident surgeon at the Royal National Orthopædic Hospital, Stanmore, for their essay on Pott's paraplegia, which were considered equal in merit.

A Public Health Advisory Committee

Acting on a suggestion made by the County Councils Association the Minister of Health proposes to set up a standing advisory committee to assist him in public health matters. It will advise him on any question of policy or administration affecting the public health services which he may refer to it. The permanent secretary to the Ministry will act as chairman and the committee will consist of representatives of local authorities.

Beit Memorial Fellowships

An election of junior Fellows will take place in July, 1934. The fellowships are of the annual value of £400 and are usually tenable for three years. Candidates should be prepared to begin work on Oct. 1st, and applications should be sent to Prof. T. R. Elliott, F.R.S., University College Hospital medical school, London, W.C.1, before May 18th. Further particulars will be found in our advertisement columns.

Society for the Provision of Birth Control Clinics

A lecture on the Theory and Practice of Contraception will be given to medical students by Dr. Gladys Cox on Tuesday, March 13th, at the Walworth Women's Welfare Centre, 153A, East-street, London, S.E.17. Practical demonstrations will be given on Tuesdays, March 20th and 27th, at 6 P.M. and 7 P.M. on both days. These will be open to students who have completed their gynæcological course, and those wishing to be present should communicate as soon as possible with the secretary stating on which day and at what hour they wish to attend the Centre.

Exhibition of British Medical Manufacturers

On. Feb. 10th (p. 310) we gave some account of the proposal to establish a permanent exhibition of medical equipment at British Industries House (the large new building erected by Messrs. Gamage at Marble Arch, London). A medical committee, including Dr. Alfred Cox (chairman), Sir Crisp English, and Dr. E. P. Poulton has been appointed to advise the directors. Over 80 manufacturers have already made inquiries about the allocation of space, and we are informed that the exhibition will be fully representative of all branches of hospital equipment. Members of the medical profession will be admitted on presentation of their cards.

The Institute of Ray Therapy

A drawing-room meeting on behalf of this institute will be held at the Mansion House, London, on Friday, March 2nd, at 3.30 P.M., when the medical speakers will include Lord Horder, Sir William Hale-White, Sir Robert Stanton Woods, and Dr. W. J. O'Donovan, M.P. The institute, whose honorary medical director is Dr. William Beaumont, is at 152, Camden-road, N.W.1, and was opened four years ago. Its object is to help people of small means who cannot otherwise afford treatment by medical electricity, and necessitous patients are treated free. Patients are received only on presentation of a certificate from their own doctors, and treatments are given by appointment. The conditions which the institute deals with include convalescence after illness and operation, general debility, rickets, and bronchitis in children, rheumatism and rheumatoid arthritis, skin diseases, baldness, and tuberculous laryngitis. It is capable of treating 4000 patients a week.

The Irish Society

Colonel R. J. Blackham, M.D., has been elected deputy governor of the Honourable the Irish Society. The society was created by royal charter of James I. in 1613 for the Plantation of Ulster, and owns much property in Londonderry and Coleraine, besides the salmon fishing on the rivers Foyle and Bann. Its constitution is similar to that of the City companies, but the court of assistants is appointed from the members of the courts of aldermen and common council of the corporation of London. Colonel Blackham is the first member of the medical profession to be elected deputy governor of the society.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, March 6th.

Pathology. 8 P.M. Laboratory Meeting at St. Mary's Hospital, W. Communications: Sir Almroth Wright: 1. Methods of Measuring the Bactericidal Power of Blood with a View to the Testing of Vaccines. 2. Phagocytic Efficiency of Leucocytes and Phagocytosis in the Absence of Serum. G. Roche Lynch, R. H. Slater, and J. G. Oaler: 3. Determination of Traces of Lead in Tissues with Special Reference to Bone. I. H. Maclean, E. A. Butterworth, and R. N. D. Cridland: 4. Toxigenic Powers of Staphylococci. Demonstrations will be given by W. W. Beattie, Alexander Fleming, John Freeman, R. M. Fry, Ronald Hare, G. E. Harre and R. H. Slater, A. F. Hayden, F. Himmelweit, C. W. Morley, W. D. Newcomb, and D. M. Pryce.

Orthopædics. 5.30 P.M. (Cases at 4.30 P.M.) Mr. M. Lee (for Mr. St. J. D. Buxton): 1. Absent Fibula and Short Femur. Mr. G. R. Girdlestone: 2. Radiograms of Traction Fracture of the Anterior Inferior Spine of the Ilium. Mr. C. Hope Carlton: 3. Avulsion Fracture of the Tibial Tubercle. Mr. Alan H. Todd: 4. Genu Valgum, the result of Fracture of External Tuberosity of Tibia. 5. Milroy's Disease; late Appearance. Mr. B. H. Burns: 6. Necrosis of Head of Femur after Dislocation. 7. Ossification in Muscles of the Forearm.

WEDNESDAY.

History of Medicine. 5 P.M. Sir Humphry Rolleston: The History of Hæmatology.

Surgery and Medicine. 8.30 P.M. Special discussion on Hæmatemesis to be opened by Mr. G. Gordon-Taylor, Mr. J. Morley, Dr. A. Abrahams, and Dr. T. Izod Bennett.

FRIDAY.

Clinical. 5.30 P.M. (Cases at 4.30 P.M.) Dr. W. M. Levitt and Dr. R. F. Phillips: 1. Plasmoma of Sacrum; Apparent Cure by Deep X Ray Therapy. 2. Basicranial Neoplasm with Multiple Cranial Nerve Paralyses; Apparent Cure by Deep X Ray Therapy. 3. Carcinoma of Œsophagus; Disappearance of Growth after Deep X Ray Therapy; ? Damage to Lungs by X Rays. Mr. Geoffrey Evans: 4. and 5. Vaquez Disease. Dr. Dorothy Hare: 6. and 7. Dyspituitarism. (*a*) Cushing's Basophil Pituitary Syndrome. (*b*) Pituitary Tumour with Polyglandular Deficiencies (Thyroid Suprarenal, Pancreas). Dr. E. Stolkind: 8. ? Genito-suprarenal Syndrome.

Ophthalmology. 5 P.M. Meeting at the New Medical School, St. Mary's Hospital, Praed-street, W. Tea at 4.30 P.M. Cases will be shown.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 5th.—9 P.M., Dr. C. E. Lakin: Disturbances of the Body Temperature. (Third Lettsomian lecture.)

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Royal Northern Hospital, Holloway-road, N

FRIDAY, March 9th.—9 P.M., Dr. James Maxwell: Modern Treatment of Nephritis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, March 6th and following THURSDAY.—5 P.M., Prof. E. C. Dodds: Hormones and Their Chemical Relations. (First and Second Goulstonian lectures.)

BRITISH MEDICAL ASSOCIATION.

WEDNESDAY, March 7th.—8 P.M. (in the Great Hall of the B.M.A., Tavistock-square, London, W.C.), Dr. R Hutchison: Food of the Growing Child. (Charles Hastings lecture.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, March 8th.—4.30 P.M., Dr. A. D. Cowburn: Preventive Medicine and the Law. 9 P.M., Dr. M. Critchley: Headaches.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, March 6th.—3.15 P.M., Mr. F. D. Saner: Considerations in the Treatment of Fractures of the Limb.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, March 9th.—4 P.M., Mr. Archer Ryland: The Temporal Bone. (Illustrated by slides.)

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.
WEDNESDAY, March 7th.—4 P.M., Mr. D. H. Patey: Some Points in the Treatment of Hernia.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.
WEDNESDAY, March 7th.—4 P.M., Mr. J. G. Yates Bell: Minor Urology in General Practice.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, March 5th to SUNDAY, March 11th.—MEDICAL SOCIETY OF LONDON, Chandos-street, W. Lecture-Demonstration on Anæmia, by Dr. A. E. Clark-Kennedy, on Tues., at 2.30 P.M. to 4 P.M.—ROYAL FREE HOSPITAL, Gray's Inn-road, W.C. Demonstration on Ante-natal Treatment, by Dame Louise McIlroy, Frid., at 5 P.M.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W. Lecture-demonstration on Neurology, by Dr. L. R. Yealland, on Sat., at 3 P.M.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Course in Medicine, Surgery, and Gynæcology. All day.—GORDON HOSPITAL, Vauxhall Bridge-road, S.W. Course in Proctology. All day.—ROYAL ALBERT DOCK HOSPITAL, S.E. Week-end Course in Clinical Surgery. All day. Sat. and Sund.—PANEL OF TEACHERS. Individual clinics in various branches of medicine and surgery are available daily by arrangement with the Fellowship of Medicine. Courses of instruction arranged by the Fellowship of Medicine are open only to Members and Associates.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, March 6th.—5 P.M., Dr. Riddoch: Common Eruptions in Childhood.
THURSDAY.—5 P.M., Dr. R. T. Brain: Benign Growths of the Skin.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, March 5th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Symonds: Head Injuries (1).
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: Familial Diseases (4) Lindau's Disease, Leber's Atrophy, &c.
WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic. 3.30 P.M., Dr. James Collier: Clinical Demonstration.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Riddoch: Neurosyphilis (1).
FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Vascular Disease of the Brain (2).

NATIONAL COUNCIL FOR MENTAL HYGIENE.
WEDNESDAY, March 7th.—5 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. Millais Culpin: Psychology of Fatigue.

ANCOATS HOSPITAL, Ancoats, Manchester.
THURSDAY, March 8th.—4.15 P.M., Dr. W. J. S. Reid: Hæmorrhagic Conditions "Telangiectasia."

MANCHESTER ROYAL INFIRMARY.
TUESDAY, March 6th.—4.15 P.M., Mr. C. Roberts: Acute Infections of the Neck.
FRIDAY.—4.15 P.M., Dr. F. R. Ferguson: Demonstration of Neurological Cases.

ST. MARY'S HOSPITALS, Manchester.
FRIDAY, March 9th.—4.15 P.M. (at the Whitworth-street West Hospital), Dr. Fletcher Shaw: Home Treatment in Gynæcological Cases.

SALFORD ROYAL HOSPITAL.
FRIDAY, March 9th.—4.15 P.M., Dr. G. J. Langley: Demonstration of Medical Cases.

LEEDS GENERAL INFIRMARY.
TUESDAY, March 6th.—4 P.M., Mr. Bain: Clinical Lecture.

GLASGOW POST-GRADUATE LECTURES.
WEDNESDAY, March 7th.—4.15 P.M. (at the Royal Maternity and Women's Hospital), Prof. James Hendry: Obstetrical Cases.

Appointments

GREIG, R. M., M.D., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Salcoats, Ayrshire.

St. Thomas's Hospital.—The following appointments are announced:—
FURLONG, R. J., M.B. Lond., F.R.C.S. Eng., Chief Assistant, Orthopædic Department.
HUBERT, W. H. de B., M.R.C.S., Chief Assistant, Department of Psychological Medicine.

Vacancies

For further information refer to the advertisement columns

Barnsley, Beckett Hospital and Dispensary.—Cas. O. £250.
Beit Memorial Fellowships for Medical Research.—Jun. Fellows. Each £400.
Birmingham, Queen's Hospital.—H.S. to Ear, Nose and Throat Dept. At rate of £70.
Blackburn Royal Infirmary.—Res. H.P. £175.
Bradford Children's Hospital.—H.S. £100.
Bradford, St. Luke's Municipal General Hospital.—H.P.'s and H.S.'s. Each at rate of £150.
Bridgend, Glamorgan County Mental Hospital.—Med. Supt. £1100.
Brighton, Sussex, Maternity and Women's Hospital.—Res. H.S. £130.
Cambridge, Addenbrooke's Hospital.—H.S., No. 2. At rate of £130.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Canterbury, Kent and Canterbury Hospital.—H.P. At rate of £125.
Central Middlesex County Hospital, Willesden.—Jun. Res. Asst. M.O. £250.
Coventry and Warwickshire Hospital.—H.P. At rate of £160. Also Cas. O. and H.S. Each at rate of £125.
Dorchester, Dorset County Hospital.—H.S. At rate of £160.
Dublin, House of Recovery and Fever Hospital.—Res. Med. Supt. £675.
Dudley, Guest Hospital.—H.S. £170–£200.
Dulwich Hospital, East Dulwich-grove, S.E.—Asst. M.O. £250.
Durham County Council.—Asst. Welfare M.O. £500.
East Ham Memorial Hospital, Shrewsbury-road, E.—H.P. and H.S. to Spec. Depts., and Cas. O. At rate of £150 and £120 respectively.
Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120. Also Physician to Skin Dept. 50 gns.
Fulham Hospital, St. Dunstan's-road, Hammersmith.—Asst. M.O. £250.
Guildford, Royal Surrey County Hospital.—Res. Med. and Surg. O. and Reg. £250.
Highgate Hospital, Dartmouth Park Hill, N.—Asst. M.O. £250.
Hospital for Sick Children, Great Ormond-street, W.C.—Physician to Out-patients.
Hospital for Women, Soho-square, W.—Surg. (Gynæcological) to Out-patients.
Leamington Spa, Warneford General Hospital.—Res. H.S. At rate of £150.
Leicester Royal Infirmary.—H.P., H.S., Reg. and Cas. O.'s. Each at rate of £125. Also Jun. Cas. O. At rate of £100.
Lincoln, Lincolnshire Joint Board for Mentally Defective.—Medical Adviser. £800.
Liverpool and District Hospital for Diseases of the Heart.—H.P. At rate of £100.
Liverpool, City Infectious Diseases Hospitals.—Asst. Res. M.O. £200.
Liverpool, Royal Babies' Hospital, Woolton.—Res. M.O. At rate of £90.
London County Council.—Asst. M.O.'s. Each £470. Jun. M.O.'s. Each £7 per week. Ophthalmologist. £200. Also Part-time Temp. Asst. Aurists. 34s. 6d. per session.
Luton, Bute Hospital.—Consulting Radiologist.
Manchester, Ancoats Hospital.—Asst. Hon. Surgeon, &c.
Manchester, Wilkington Hospital and Institution.—Asst. M.O. £300.
Middlesex County Council.—District M.O.'s. £50 to £300. Also Public Vaccinators.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Asst. Radiologist.
National Hospital, Queen-square, W.C.—H.S. £150.
Nelson Hospital, Merton, S.W.—Res. H.S. At rate of £100.
New End Hospital, Hampstead, N.W.—Asst. M.O. £250.
Northampton County Mental Hospital, Berrywood.—Jun. Asst. M.O. £350.
Northampton General Hospital.—Sen. Res. M.O. £250. Two H.S.'s and H.S. to Ear, Nose and Throat Dept., and Cas. O. At rate of £150 and £120 respectively.
Nottingham Children's Hospital.—Res. H.P. At rate of £150.
Nottinghamshire County Council.—Asst. County M.O. £675.
Plymouth, South Devon and East Cornwall Hospital.—H.S. At rate of £120.
Preston and County of Lancaster Royal Infirmary.—Cas. O. £150.
Preston, Wrightington Hospital, Parbold.—Jun. Asst. M.O. At rate of £200.
Princess Beatrice Hospital, Richmond-road, Earl's-court, S.W.—Res. M.O. At rate of £110.
Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100.
Radium Institute, Riding House-street, W.—H.S. At rate of £150.
Rotherham Hospital.—Sen. H.S. £200.
Royal Northern Hospital, Holloway, N.—H.S. At rate of £70.
St. Benedict's Hospital, Church-lane, Tooting, S.W.—Asst. M.O. £250.
St. Leonard's Hospital, Hoxton-street, N.—Asst. M.O. £350.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—H.S. At rate of £75.
Salford Royal Hospital.—H.P., H.S., and Cas. H.S. Each at rate of £125.
Scarborough Hospital and Dispensary.—H.S. £175.
Sheffield, Jessop Hospital for Women.—Res. M.O. At rate of £150.
Sheffield Royal Hospital.—Jun. Asst. Pathologist. £300.
Southend-on-Sea General Hospital.—H.P. and H.S. Each at rate of £100.
Surrey County Council.—Asst. M.O. £600.
Surrey Royal County Hospital.—Res. Med. and Surg. O. and Reg. £250.
Swindon and North Wilts Victoria Hospital.—Res. M.O. At rate of £125.
University of London.—University Chair of Anatomy. £1300.
West Ham County Borough, Education Committee.—Asst. School M.O. £500.
West London Hospital, Hammersmith-road, W.—H.P. and H.S. Also H.S. to Throat, Nose, and Ear Dept. Each at rate of £100.
Weston-super-Mare General Hospital.—Res. H.S. £150.
Winchester, Royal Hampshire County Hospital.—H.S. At rate of £125.
Windsor, King Edward VII. Hospital.—H.S. At rate of £100.
The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Settle, Yorks, W.R.; Caerphilly, Glamorgan; Vowchurch, Hereford; and at Brandon, Suffolk.

NOTES, COMMENTS, AND ABSTRACTS

MEDICAL RESEARCH COUNCIL

ANNUAL REPORT

THE report of the Medical Research Council for the year ended on Sept. 30th, 1933, has been issued as a command paper as we go to press, and comment must be deferred till next week. A fine tribute to its former secretary, the late Sir Walter Fletcher, of whom a good portrait is reproduced, is included. The introduction, as is usual, reviews features of the work of the year to which the Council wish to draw special attention. The report emphasises the increasing application of medical science to problems of the State, and surveys the changing aspects presented by disease. Among the matters especially noted by the Council is the progress of research on the anæmias and on the ætiology of influenza. Reference is made to the provision of extended facilities for research in clinical medicine and in radium beam-therapy, and for the trial of new remedies under controlled conditions. Among the advances in knowledge during the year under review, special note is made of the identification of vitamin C; of the demonstration that dental caries in children is susceptible to the same influencing factors as that in animals; and of the light thrown on the prognosis of chronic heart disease and on the carrier problem in chronic enteric infections.

POSTER PROPAGANDA IN HOSPITALS

AT the suggestion of Mr. Somerville Hastings and Dr. S. W. Jeger the central public health committee of the London County Council has been considering whether the wall space in waiting-halls of L.C.C. hospitals should be used "for instruction in the laws of healt by picture and poster." The committee has come to the conclusion that health propaganda by means of posters is to be encouraged but doubts whether a hospital is a suitable place for it. Posters are intended to teach people how to avoid illness and should be displayed where normal persons can see them and in such places as school clinics and welfare centres whose primary purpose is educational. It is inappropriate, the committee feels, to try to impress on people who are already suffering from diseases how simply they might have been avoided, and an unfortunate impression might be made on friends and relatives who frequent the waiting-rooms. On these and other grounds the committee has decided not to proceed with the proposal.

THE INSULIN TREATMENT

WE have received from Boots Pure Drug Company, Ltd., Nottingham, England, a useful little brochure addressed to the medical profession upon the insulin treatment of diabetes. This brief outline of the history of the discovery, of the preparation of insulin by the firm, and of such aspects of the therapy as are of general interest is thoroughly well done. References to some of the more recent papers and books relating to insulin are very carefully prepared, and a list of relevant works which can be obtained through any branch of the firm is appended.

SCIENTIFIC HYBRIDS

BLANCUS writes: With reference to the note by Major H. Williamson, I.M.S., in THE LANCET of Feb. 24th, I observe that Stedman's Medical Dictionary states that "hypertension" is "supertension and is incorrectly used as a synonym of high blood pressure or hyperpiesis." Under "supertension" is the definition: "extreme tension; incorrectly used as a synonym of high blood pressure or hyperpiesis." As regards "supercinema," this should certainly not be "hypercinema." The word "cinema" is an abbreviation of "cinématographe," and the apparatus and the word were introduced by the brothers Lumière, of Lyons, who preferred to latinise and gallicise the Greek term and not to follow the word "kinetoscope," which did get into the French dictionary, for an apparatus invented by Edison. Therefore the word "super," a Latin prefix, is correct, and not "hyper" for "supercinema." The word "kinematograph" is used in Germany but has been abbreviated to "kino" and "kino-theater," but the Germans have long preferred to use "k" instead of "c" in many words.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Lts. to be Surg. Lt.-Comdrs.: T. L. Cleave, G. D. J. Ball, and A. N. Forsyth.

ARMY MEDICAL SERVICES

It is announced by the War Office that Colonel T. S. Coates, O.B.E., Deputy-Director of Medical Services, Northern Command, has been selected for promotion to the rank of Major-General, and to be Deputy-Director of Medical Services, Aldershot Command, in succession to Major-General J. A. Hartigan, C.B., C.M.G., D.S.O., Honorary Physician to the King, who has been appointed Director-General, A.M.S.

ROYAL ARMY MEDICAL CORPS

The undermentioned are restd. to the estabt.: Lts. on prob. R. W. Scott and J. D. P. Macpherson.

TERRITORIAL ARMY

Capt. D. J. MacMyn is restd. to the estabt.
Lt. J. W. Graham to be Capt.

TERRITORIAL ARMY RESERVE OF OFFICERS

Lt. F. C. H. Beards from Active List to be Lt.

INDIAN MEDICAL SERVICE

Lt.-Col. I. M. Macrae to be Col.
To be Capt. (on prob.): A. A. Pullar.
The undermentioned officers retire: Maj.-Gen. W. V. Coppinger and Col. L. Cook.

The following names appeared under the heading of the Royal Army Medical Corps in THE LANCET, Feb. 24th, p. 427. They should have been placed with the Indian Medical Service.

To be Lts. on Prob.: R. R. Prosser, J. Scott, J. Edis-Myers, T. K. White, D. W. Taylor (seconded), C. J. Hassett, S. G. O'Neill, F. J. Doherty, and J. W. D. Goodall (seconded).

Lt. B. F. B. Russell is restd. to the estabt.

Births, Marriages, and Deaths

BIRTHS

BROWN.—On Feb. 15th, at St. Matthew's, Northampton, the wife of Dr. J. G. Lyon Brown, O.B.E., of a son.

HOBDAY.—On Feb. 18th, at Trebovir-road, Earl's Court, S.W., the wife of Dr. F. T. J. Hobday, of a son.

KERR.—On Feb. 17th, at Birmingham, the wife of James A. Kerr, B.Sc., M.D., D.P.H., of a daughter.

PLUMPTRE.—On Feb. 22nd, at Sheffield, the wife of Lieut.-Colonel C. M. Plumptre, F.R.C.S.E., I.M.S., of a daughter.

MARRIAGES

WINTERTON—MARSDEN.—On Feb. 22nd, at St. Mary's, Charlton Kings, Cheltenham, Wm. Ralph Winterton, M.B., B.Ch., to Kathleen M. Marsden, daughter of the late D. L. Marsden and Mrs. Marsden, of Ely, Cardiff.

DEATHS

HAYDON.—On Feb. 24th, at Marlborough, Thomas Horatio Haydon, B.A., M.B., B.Ch., aged 68 years.

MASTERS.—On Feb. 21st, at Northridge, Northiam, Sussex, Dr. Alfred Thomas Masters, aged 84 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.